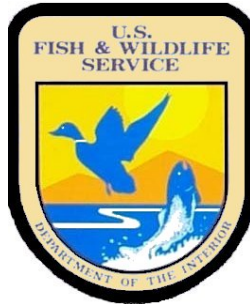


The Road Inventory of Bear Lake National Wildlife Refuge Montpelier, ID



Prepared By:
Federal Highway Administration
Central Federal Lands Highway Division
May 2013



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INTRODUCTION

The Transportation Equity Act for the 21st Century (Public Law 105-178) created the Refuge Roads Program. Refuge roads are those public roads that provide access to or within a unit of the National Wildlife Refuge System and for which title and maintenance responsibility is vested in the United States Government. Funds from the Highway Trust Fund are available for refuge roads and can be used by the station to pay the cost of:

- (a) Maintenance and improvements of refuge roads.
- (b) Maintenance and improvements of:
 - (1) Adjacent vehicle parking areas
 - (2) Provision for pedestrians and bicycles and
 - (3) Construction and reconstruction of roadside rest areas that are located in or adjacent to wildlife refuges
- (c) Administrative costs associated with such maintenance and improvements.

The funds available for refuge roads are to be disbursed based on the relative needs of the various refuges in the National Wildlife Refuge System, and taking into consideration:

- (a) The comprehensive conservation plan for each refuge;
- (b) The need for access as identified through land use planning; and
- (c) The impact of land use planning on existing transportation facilities.

To determine the relative needs of the U.S. Fish and Wildlife Service, the Federal Highway Administration (FHWA) was asked to inventory all public access roads and parking lots and provide a condition assessment of each. In 2008 the inventory was expanded to include administrative (service use only) roads and parking lots. An FHWA representative meets with refuge personnel to identify route segments and assign route numbers and functional classifications (See Appendix) for each route. All roads and parking lots are mapped using Trimble GPS units and visually assessed for condition using the RSL method of evaluation developed at Utah State University (See Appendix). Culverts, Gates, Guardrails and Low Water Crossings are also mapped and inspected for any obvious defects.

An estimate is provided, in year 2008 dollars, based on the condition determined by the rating system. Estimates are based upon data and location factors from the 2008 RS Means Heavy Construction Cost Data 22nd Annual Edition. Cost estimates should be evaluated on a case-by-case basis when being used for programming purposes.

Native Surfaced roads and parking lots already inventoried will not be re-inventoried and will not appear individually in report chapters 5, 6 and 8. Mileages and areas of native surfaced roads and parking lots will still appear in all summaries in the report and will remain in the road inventory database. In addition to this report, the FHWA will furnish the condition ratings of each route and segment to the Fish and Wildlife Service in a Microsoft Access database so the data can be included in their Real Property Inventory.

Bear Lake NWR - 14613 Summaries

Route Miles and Percentages by Functional Class and Condition

Condition Rating (Based on RSL)*

F. C.	Excellent		Good		Fair		Poor		Failed		TOTAL MILES
	MILES	%	MILES	%	MILES	%	MILES	%	MILES	%	
I	0.83	18.5%	3.65	81.5%	0.00	0.0%	0.00	0.0%	0.00	0.0%	4.48
II	0.10	4.5%	2.13	95.5%	0.00	0.0%	0.00	0.0%	0.00	0.0%	2.23
III	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00
IV	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00
V	0.00	0.0%	20.69	100.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	20.69
Totals	0.93	3.4%	26.47	96.6%	0.00	0.0%	0.00	0.0%	0.00	0.0%	27.40

*For a description of condition ratings for the various surface types see the Appendix.

Route Miles and Percentages by Surface Type and Condition

Paved Condition Rating [Condition(RSL)]

Surface	Excellent		Good		Fair		Poor		Failed		TOTAL MILES
	MILES	%	MILES	%	MILES	%	MILES	%	MILES	%	
AS	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00
CO	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00
Totals	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00

Unpaved Condition Rating [Condition(RSL)]

Surface	Excellent		Good		Fair		Poor		Failed		TOTAL MILES
	MILES	%	MILES	%	MILES	%	MILES	%	MILES	%	
GR	0.93	3.6%	24.86	96.4%	0.00	0.0%	0.00	0.0%	0.00	0.0%	25.79
NA	0.00	0.0%	1.61	100.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	1.61
PR	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.00
Totals	0.93	3.4%	26.47	96.6%	0.00	0.0%	0.00	0.0%	0.00	0.0%	27.40

Square Footage (Parking Areas)

Condition Rating

Surface	Excellent		Good		Fair		Poor		Failed		Total SQ FT
	SQ FT	%	SQ FT	%	SQ FT	%	SQ FT	%	SQ FT	%	
AS	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0
CO	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0
GR	0	0.0%	78,702	75.7%	25,221	24.3%	0	0.0%	0	0.0%	103,923
NA	0	0.0%	0	0.0%	3,083	43.3%	4,042	56.7%	0	0.0%	7,125
PR	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0
Totals	0	0.0%	78,702	70.9%	28,304	25.5%	4,042	3.6%	0	0.0%	111,048

Bear Lake NWR - 14613 Summaries

Route Miles and Percentages by Use Type and Condition

Road Condition Rating: Public/Administrative Use

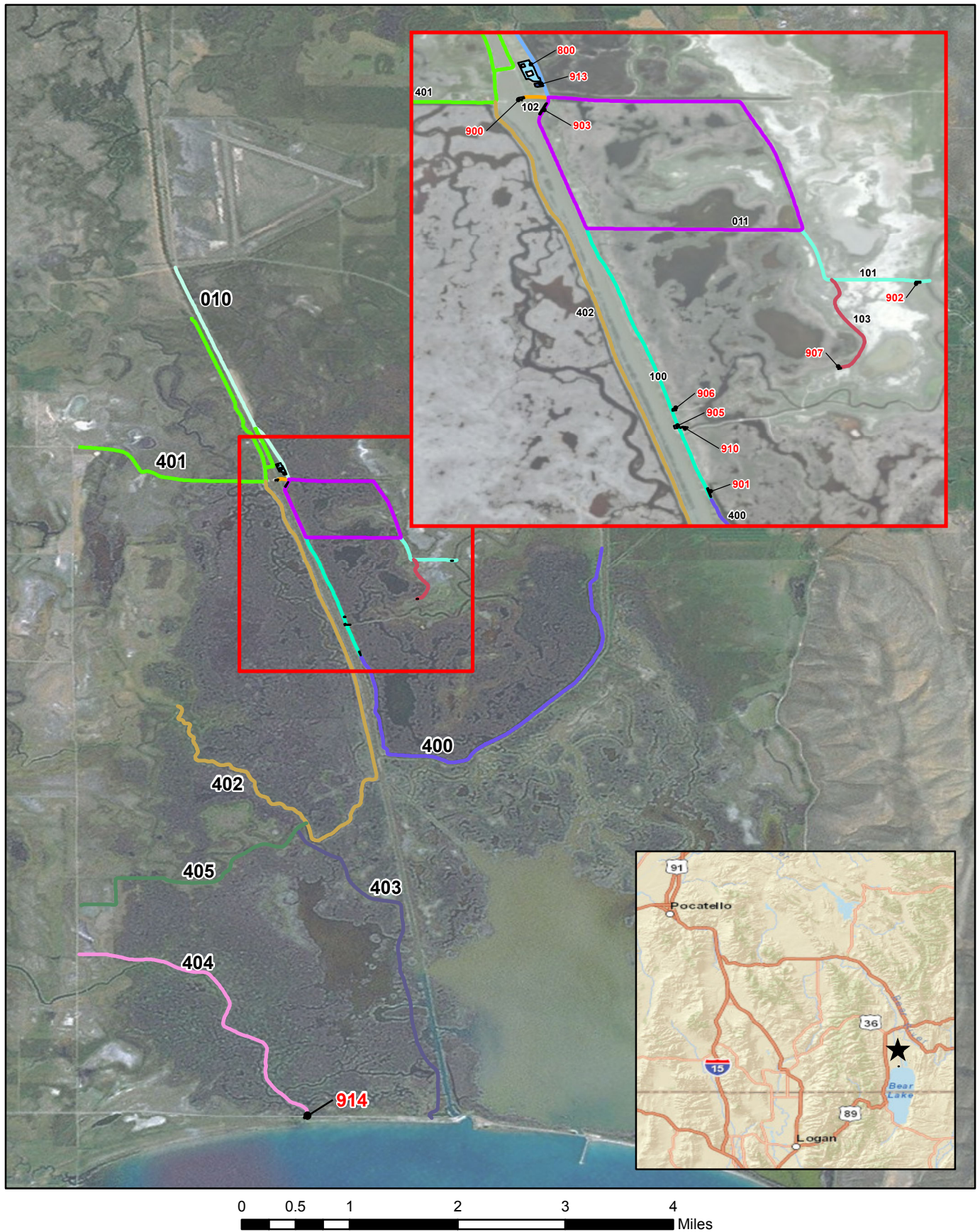
USE TYPE	Excellent		Good		Fair		Poor		Failed		TOTAL MILES
	MILES	%	MILES	%	MILES	%	MILES	%	MILES	%	
Public (FC I-III)	0.93	13.9%	5.78	86.1%	0.00	0.0%	0.00	0.0%	0.00	0.0%	6.71
Admin (FC IV-V)	0.00	0.0%	20.69	100.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	20.69
Totals	0.93	3.4%	26.47	96.6%	0.00	0.0%	0.00	0.0%	0.00	0.0%	27.40

Parking Condition Rating: Public/Administrative Use

USE TYPE	Excellent		Good		Fair		Poor		Failed		Total Sq Ft
	Sq Ft	%	Sq Ft	%	Sq Ft	%	Sq Ft	%	Sq Ft	%	
Public	0	0.0%	5703	15.0%	28304	74.4%	4042	10.6%	0	0.0%	38,049
Admin	0	0.0%	72999	100.0%	0	0.0%	0	0.0%	0	0.0%	72,999
Totals	0	0.0%	78,702	70.9%	28,304	25.5%	4,042	3.6%	0	0.0%	111,048

Bear Lake National Wildlife Refuge

ROUTE LOCATION MAP



Bear Lake NWR - 14613

Route Identification List

Shading Color Key:

White = Paved Routes
Yellow = Unpaved Routes

RTE #	Asset Number	ROUTE NAME	RTE MI	ROUTE DESCRIPTION	PAVED MI	UN-PAVED MI	LANES	FC
010	10005934	Refuge Entrance Road	2.12	From Dingle Bottoms Road to Auto Tour Route (Route 011)	-	2.12	2	1
011	10005934	Auto Tour Route	2.36	From Auto Tour Route (Route 010) to end of Auto Tour Route (Route 010)	-	2.36	1	1
100	10005934	West Rainbow Road	1.17	From Auto Tour Route (Route 011) to Rainbow Road (Route 400)	-	1.17	2	2
101	10005934	Hoageson Road	0.53	From Auto Tour Route (Route 011) to end of route	-	0.53	1	2
102	10005902	Paris Dike Boat Ramp Access	0.10	From Refuge Entrance Road (Route 010) to Paris Dike Parking (Route 900)	-	0.10	1	2
103	-	Rainbow Trail East Access	0.43	From Hoageson Road (Route 101) to Rainbow Trail East Parking (Route 907)	-	0.43	1	2
400	-	Rainbow Road	3.86	From West Rainbow Road (Route 100) to eastern refuge boundary	-	3.86	1	5
401	10005923	Alder Unit - West Access Road	3.50	From Refuge Entrance Road (Route 010) to all roads within Alder Unit	-	3.50	1	5
402	-	Bloomington Road	5.54	From Alder Unit - West Access Road (Route 401) to southwestern refuge boundary	-	5.54	1	5
403	-	Bun Dike Road	3.14	From Dunford Road (Route 405) to North Beach Road	-	3.14	1	5
404	-	St. Charles Road	2.56	From Powerline Road to North Beach Road	-	2.56	1	5
405	-	Dunford Road	2.09	From Bloomington Road (Route 402) to Powerline Road	-	2.09	1	5

Bear Lake NWR - 14613
Route Identification List (Parking)

Shading Color Key:

White = Paved Routes
Green = Unpaved Routes

Route #	Asset Number	ROUTE NAME	Area (Sq Ft)	ROUTE DESCRIPTION	Surface Type
800	-	Shop Parking	72,999	From Refuge Entrance Road (Route 010)	Gravel
900	10048845	Paris Dike Parking	4,799	From Paris Dike Boat Ramp Access (Route 102)	Gravel
901	10055255	West Rainbow Parking	4,042	From West Rainbow Road (Route 100)	Native
902	10047854	Hoageson Parking	2,237	From Hoageson Road (Route 101)	Native
903	10048845	Rainbow Boat Launch Parking	5,407	From Auto Tour Route (Route 011)	Gravel
905	10048845	Rainbow Trailhead Parking	3,515	From West Rainbow Road (Route 100)	Gravel
906	10048845	Rainbow Hunting Blind Parking	2,188	From West Rainbow Road (Route 100)	Gravel
907	10047854	Rainbow Trail East Parking	846	From Rainbow Trail East Access (Route 103)	Native
910	10055258	Rainbow Canoe Trail Launch Parking	2,415	From West Rainbow Road (Route 100)	Gravel
913	10005911	Paris Dike Boat Trailer Parking	10,119	From Refuge Entrance Road (Route 010)	Gravel
914	-	Fish Ladder Parking	2,481	From North Beach Road	Gravel

Changes to Fish and Wildlife Service Road Inventory

Bear Lake NWR

Added

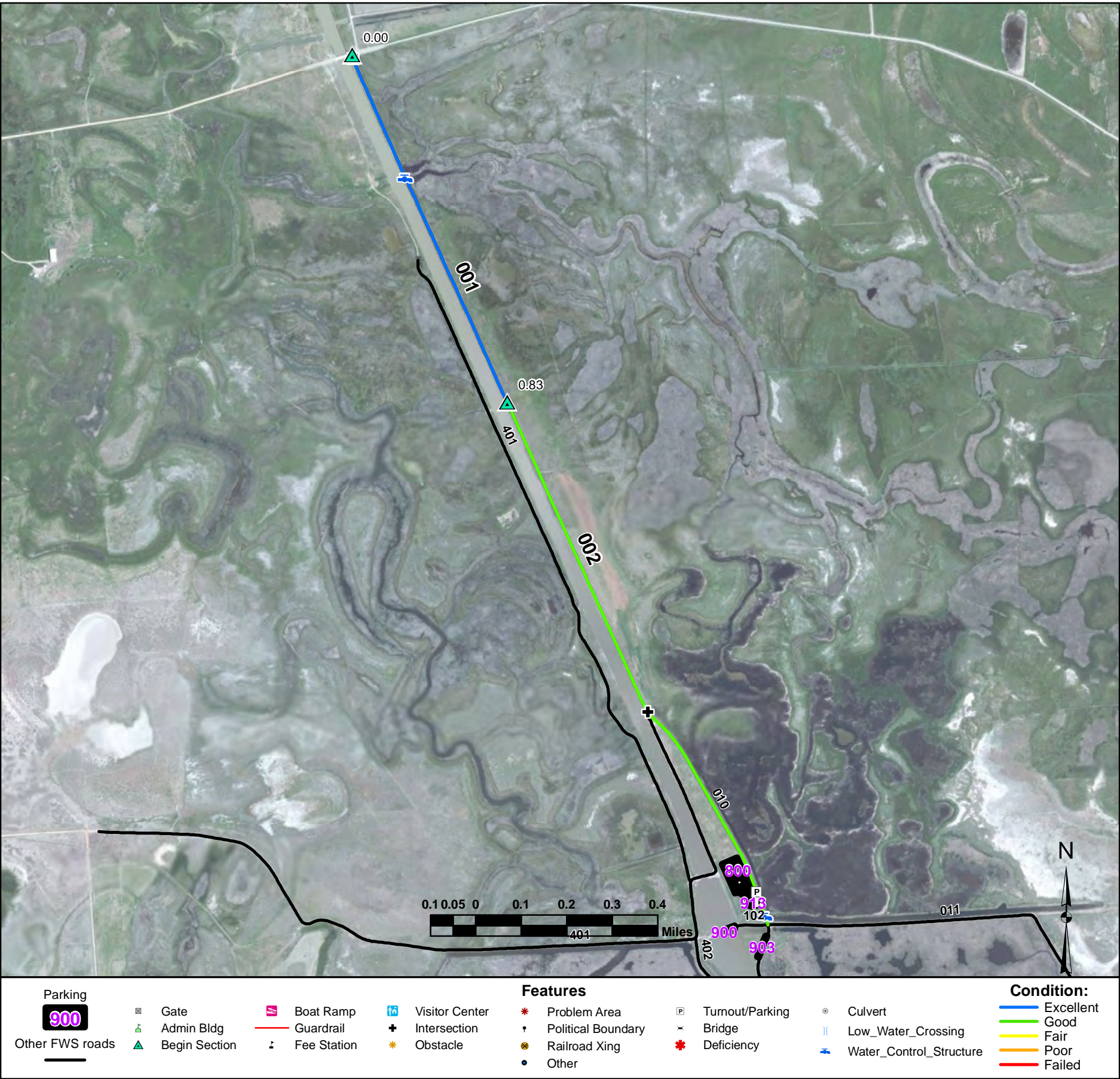
Rte #	Route Name	Description	Comments
400	Rainbow Road	New Administrative Route	
401	Alder Unit - West Access Road	New Administrative Route	
402	Bloomington Road	New Administrative Route	
403	Bun Dike Road	New Administrative Route	
404	St. Charles Road	New Administrative Route	
405	Dunford Road	New Administrative Route	
800	Shop Parking	New Administrative Route	
914	Fish Ladder Parking	New Public Route	

Modified

Rte #	Route Name	Description	Comments
103	Rainbow Trail East Access	Surface Change	Changed to Gravel

Removed

Rte #	Route Name	Description	Comments
904	Rainbow Boat Launch East	Not a parking lot	Boat Launch
908	West Rainbow Pullout North	No longer maintained	
909	West Rainbow Pullout South	No longer maintained	
911	Rainbow Boat Launch West	Not a parking lot	Boat Launch
912	Hoageson Parking	Not a parking lot	Concrete boat launch



Refuge Entrance Road

From Dingle Bottoms Road to Auto Tour Route (Route 011)

Route Number: 010

Total Route Mileage: 2.12

Asset Number	10005934	10005934			
Section Number	001	002			
Section Length (miles)	0.83	1.29			
Inspection Date	05-01-2013	05-01-2013			
Surface Type	Gravel	Gravel			
Number of Lanes	2	2			
Roadway Width (feet)	18	18			
Condition	Excellent	Good			
Remaining Service Life (years)	9	7			
Estimated Cost to Repair	\$0	\$2,000			
Current Replacement Value	\$557,900	\$867,100			

Features	Mile Post	Features	Mile Post	Features	Mile Post	Features	Mile Post
Begin Section	001-0.0						
Cattle Guard	001-0.01						
Water Control Structure	001-0.29						
Begin Section	002-0.83						
Intersection	002-1.57						
Turnout/Parking	002-2.05						
Turnout/Parking	002-2.05						
Water Control Structure	002-2.1						



Auto Tour Route

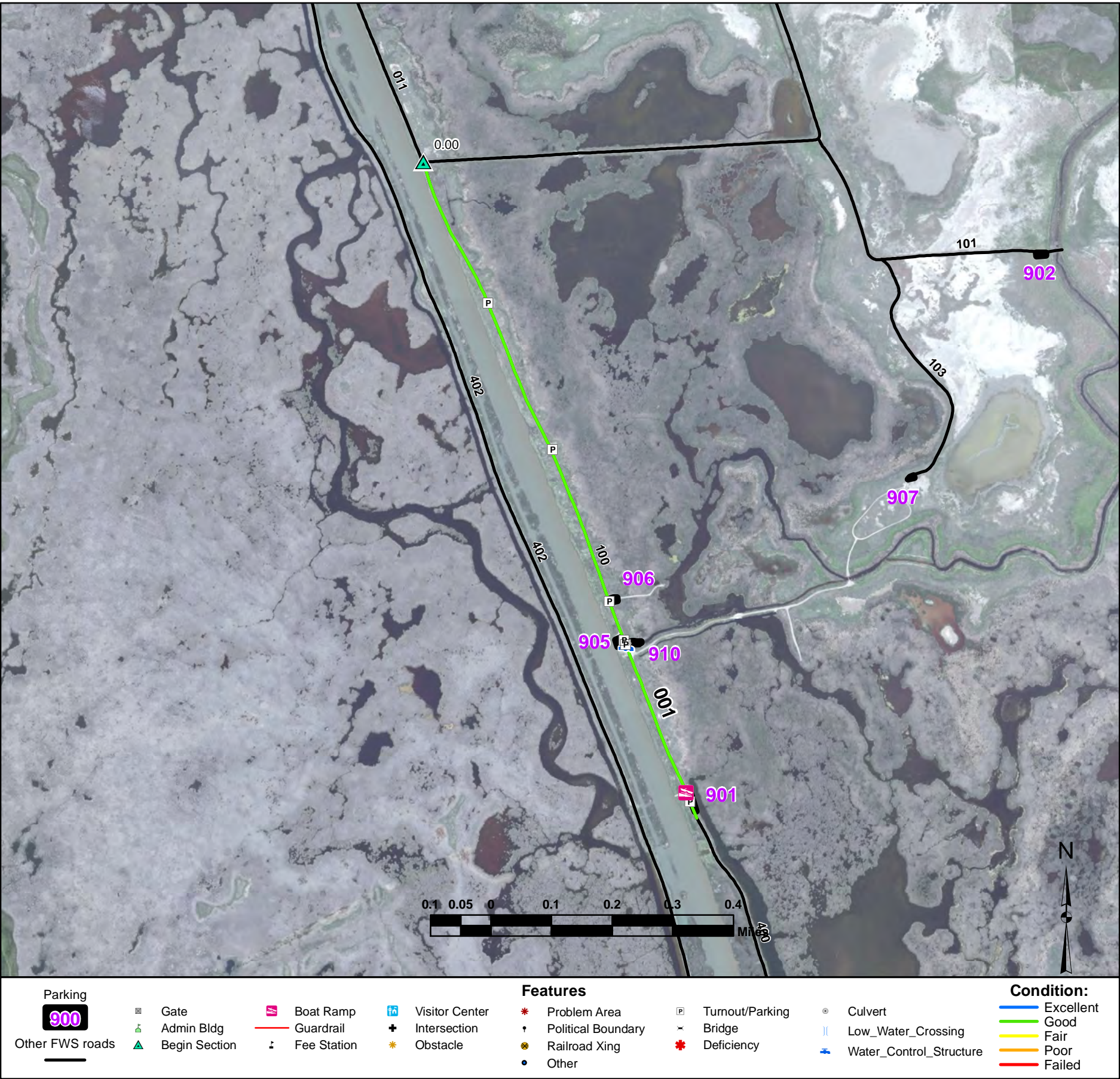
From Auto Tour Route (Route 010) to end of Auto Tour Route (Route 010)

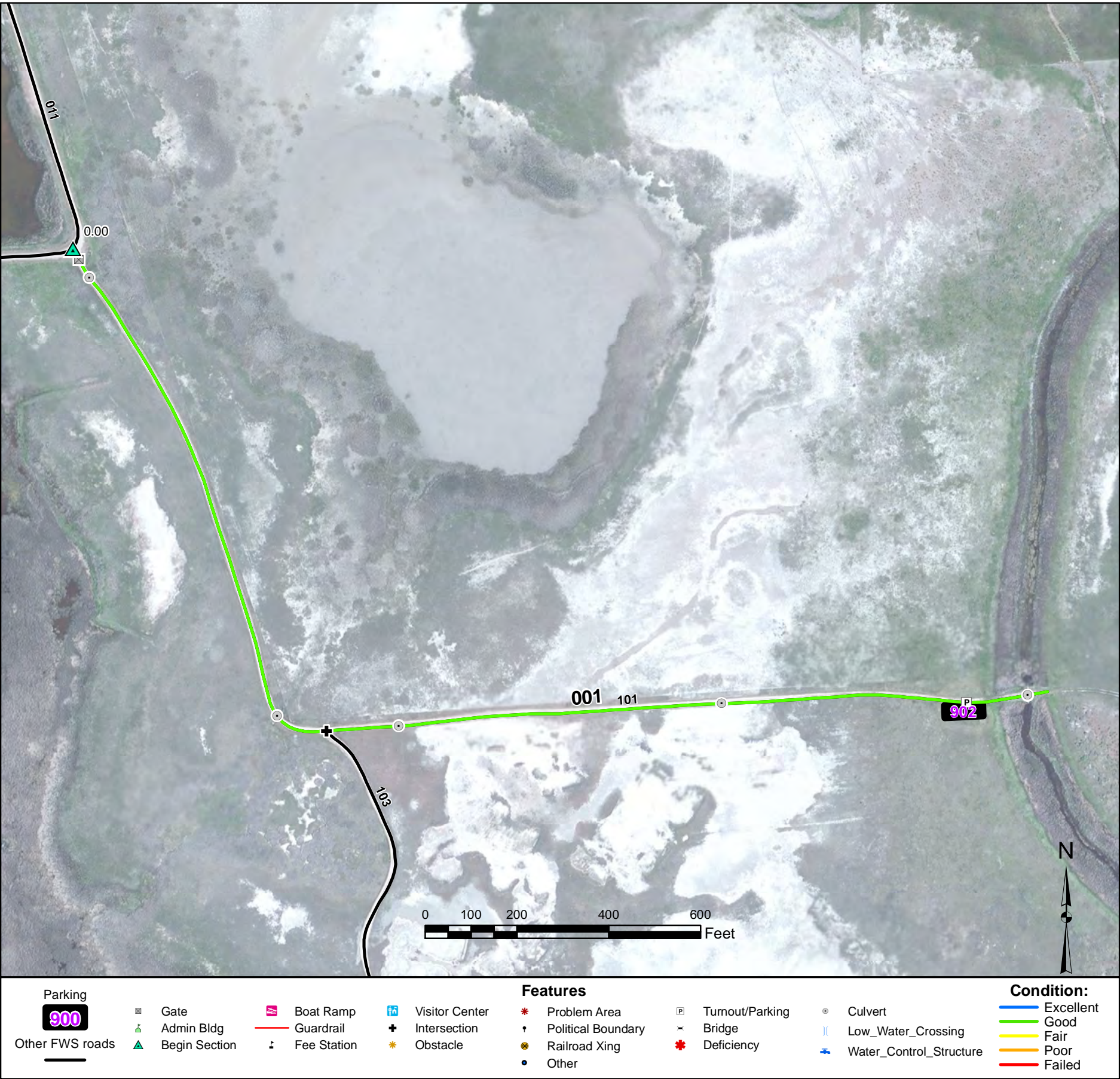
Route Number: 011

Total Route Mileage: 2.36

Asset Number	10005934	10005934	10005934		
Section Number	001	002	003		
Section Length (miles)	0.97	1.01	0.38		
Inspection Date	05-01-2013	05-01-2013	05-01-2013		
Surface Type	Gravel	Gravel	Gravel		
Number of Lanes	1	1	1		
Roadway Width (feet)	14	14	14		
Condition	Good	Good	Good		
Remaining Service Life (years)	7	7	7		
Estimated Cost to Repair	\$1,500	\$1,600	\$600		
Current Replacement Value	\$652,000	\$678,900	\$255,400		

Features	Mile Post	Features	Mile Post	Features	Mile Post	Features	Mile Post
Begin Section	001-0.0						
Water Control Structure	001-0.01						
Turnout/Parking	001-0.05						
Intersection	001-0.5						
Water Control Structure	001-0.79						
Turnout/Parking	001-0.97						
Begin Section	002-0.97						
Intersection	002-1.25						
Turnout/Parking	002-1.3						
Turnout/Parking	002-1.58						
Culvert	002-1.75						
Begin Section	003-1.98						





Hoageson Road

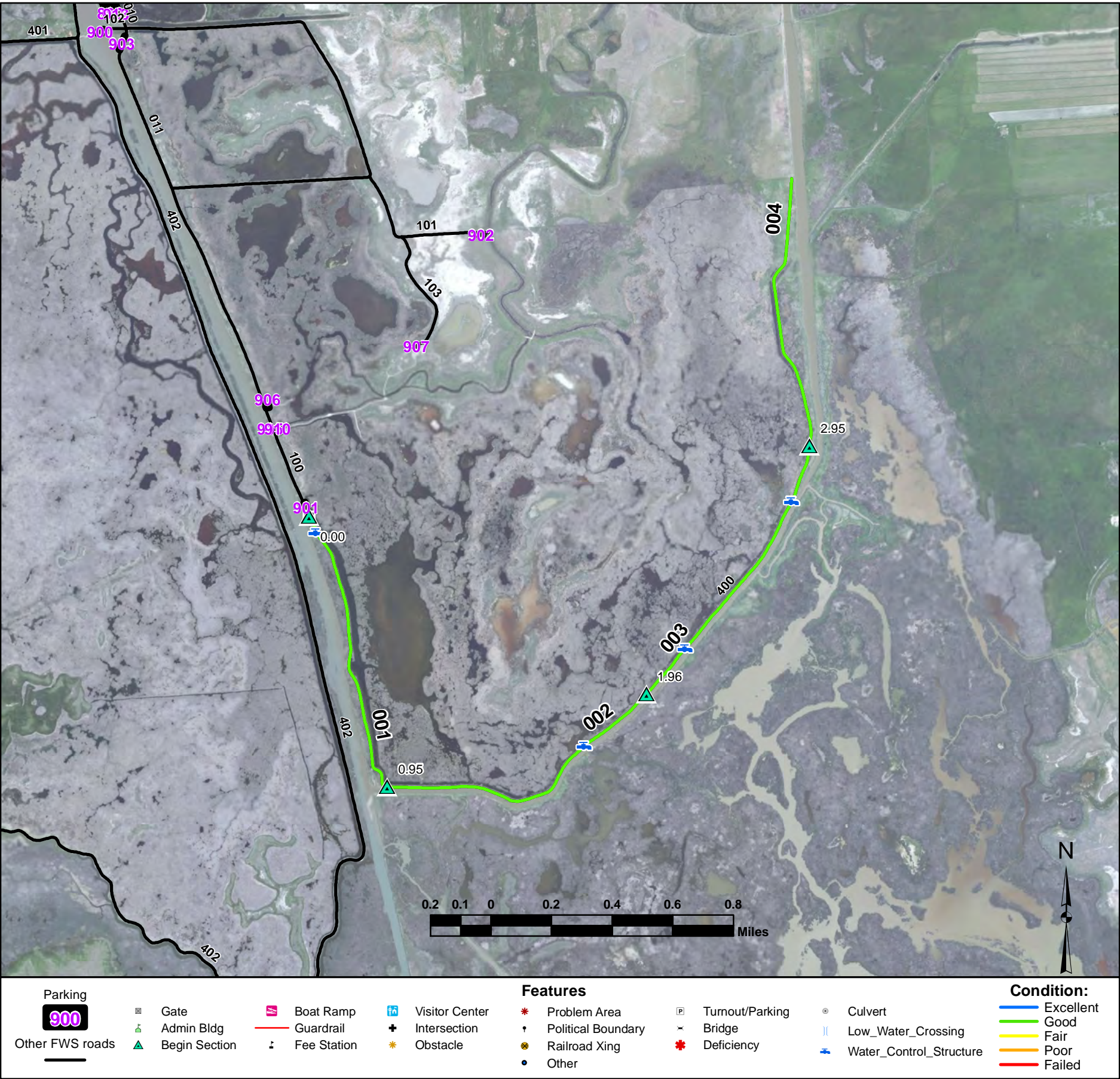
From Auto Tour Route (Route 011) to end of route

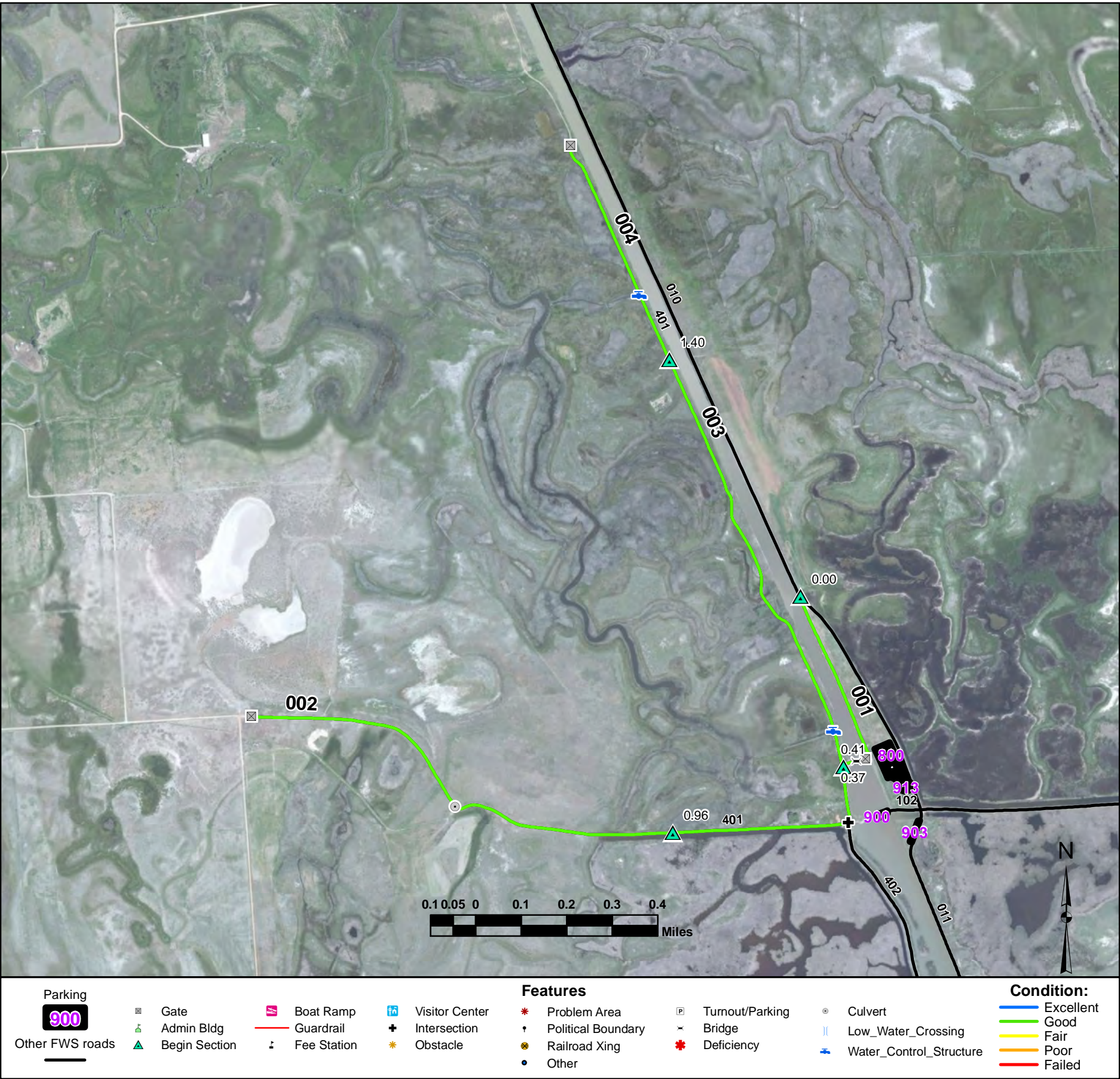
Route Number: 101

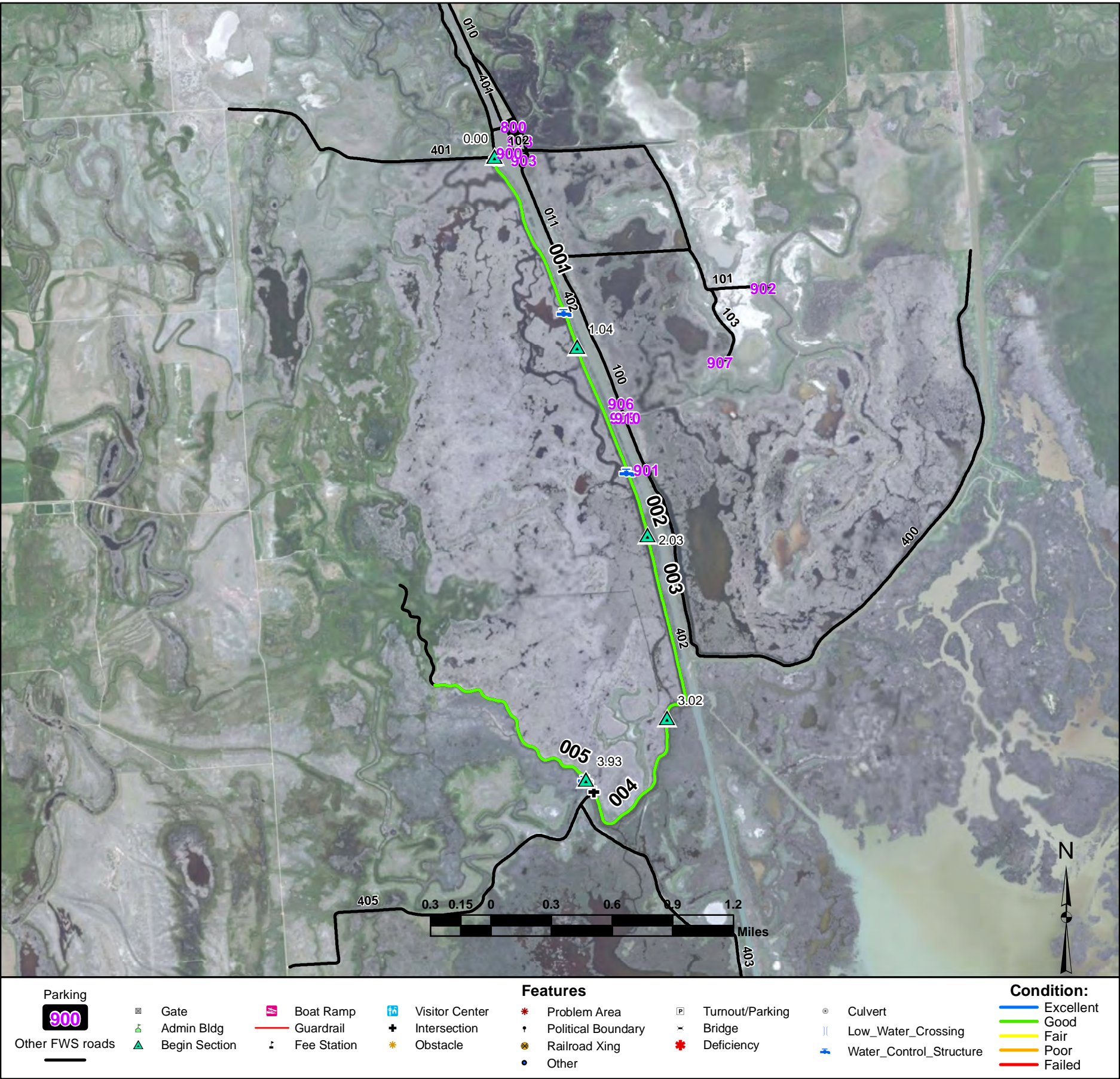
Total Route Mileage: 0.53

Asset Number	10005934				
Section Number	001				
Section Length (miles)	0.53				
Inspection Date	05-01-2013				
Surface Type	Gravel				
Number of Lanes	1				
Roadway Width (feet)	12				
Condition	Good				
Remaining Service Life (years)	5				
Estimated Cost to Repair	\$800				
Current Replacement Value	\$356,200				

Features	Mile Post	Features	Mile Post	Features	Mile Post	Features	Mile Post
Begin Section	001-0.0						
Gate	001-0.01						
Culvert	001-0.01						
Culvert	001-0.18						
Intersection	001-0.2						
Culvert	001-0.24						
Culvert	001-0.38						
Turnout/Parking	001-0.49						
Culvert	001-0.52						







Bloomington Road

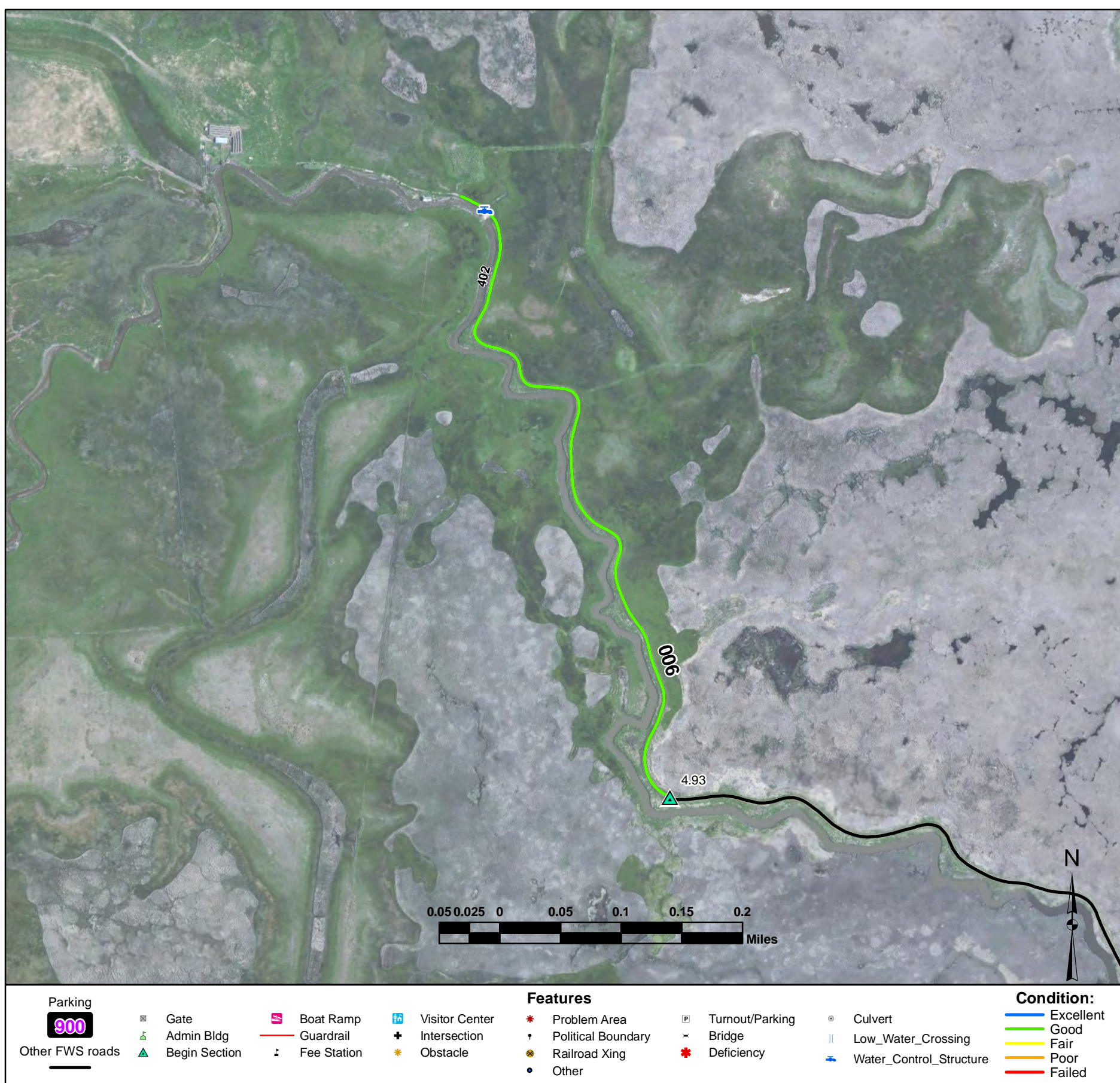
From Alder Unit - West Access Road (Route 401) to southwestern refuge boundary

Route Number: 402

Total Route Mileage: 5.54

Asset Number	-	-	-	-	-
Section Number	001	002	003	004	005
Section Length (miles)	1.04	0.99	0.99	0.91	1.00
Inspection Date	05-01-2013	05-01-2013	05-01-2013	05-01-2013	05-01-2013
Surface Type	Gravel	Gravel	Gravel	Gravel	Native
Number of Lanes	1	1	1	1	1
Roadway Width (feet)	14	14	14	14	14
Condition	Good	Good	Good	Good	Good
Remaining Service Life (years)	7	7	7	7	5
Estimated Cost to Repair	\$1,600	\$1,600	\$1,600	\$1,400	\$1,700
Current Replacement Value	\$699,000	\$665,400	\$665,400	\$611,600	\$347,700

Features	Mile Post	Features	Mile Post	Features	Mile Post	Features	Mile Post
Begin Section	001-0.0						
Water Control Structure	001-0.02						
Water Control Structure	001-0.86						
Begin Section	002-1.04						
Water Control Structure	002-1.71						
Begin Section	003-2.03						
Begin Section	004-3.02						
Intersection	004-3.86						
Water Control Structure	004-3.93						
Begin Section	005-3.93						



Bloomington Road

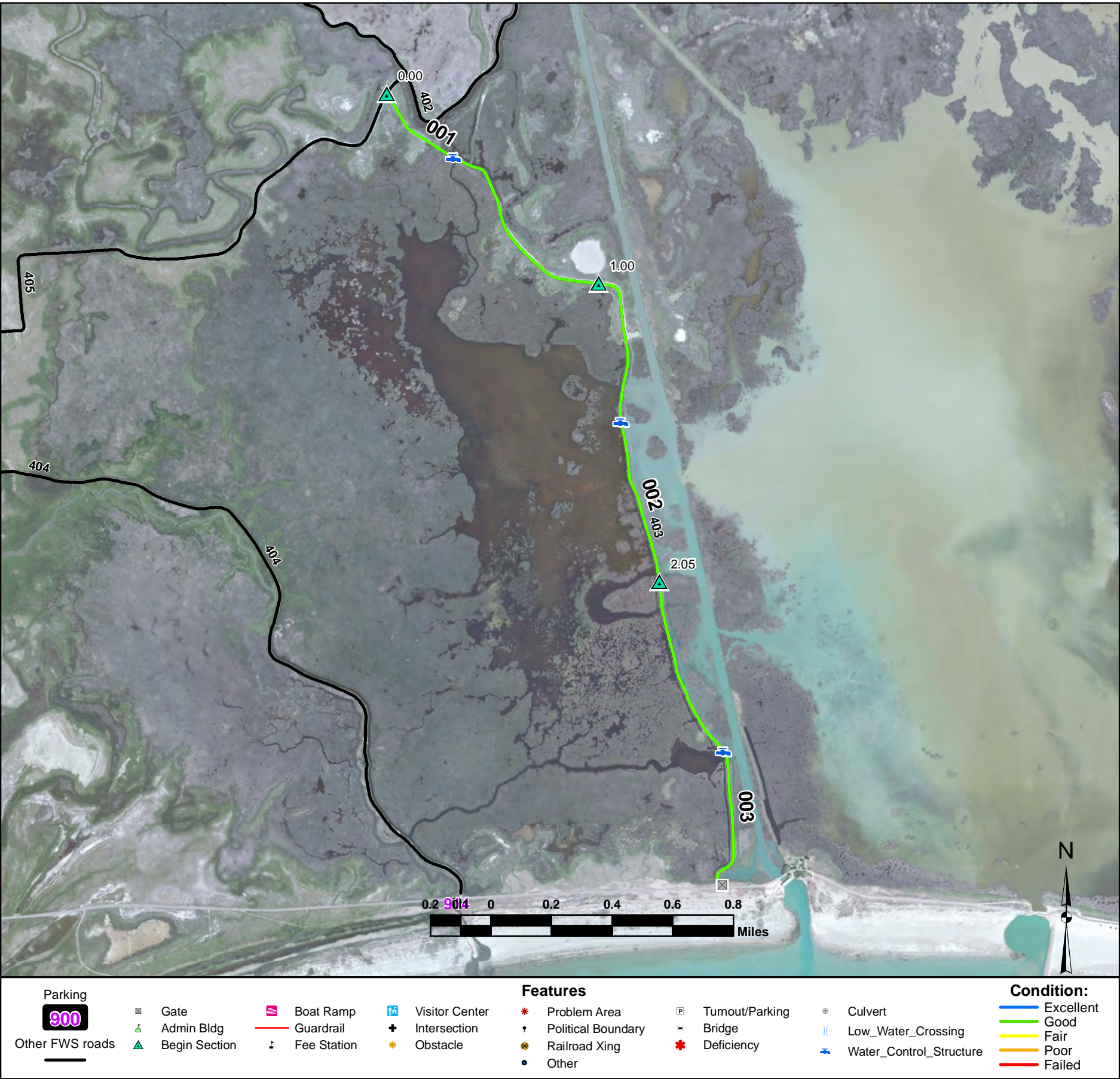
From Alder Unit - West Access Road (Route 401) to southwestern refuge boundary

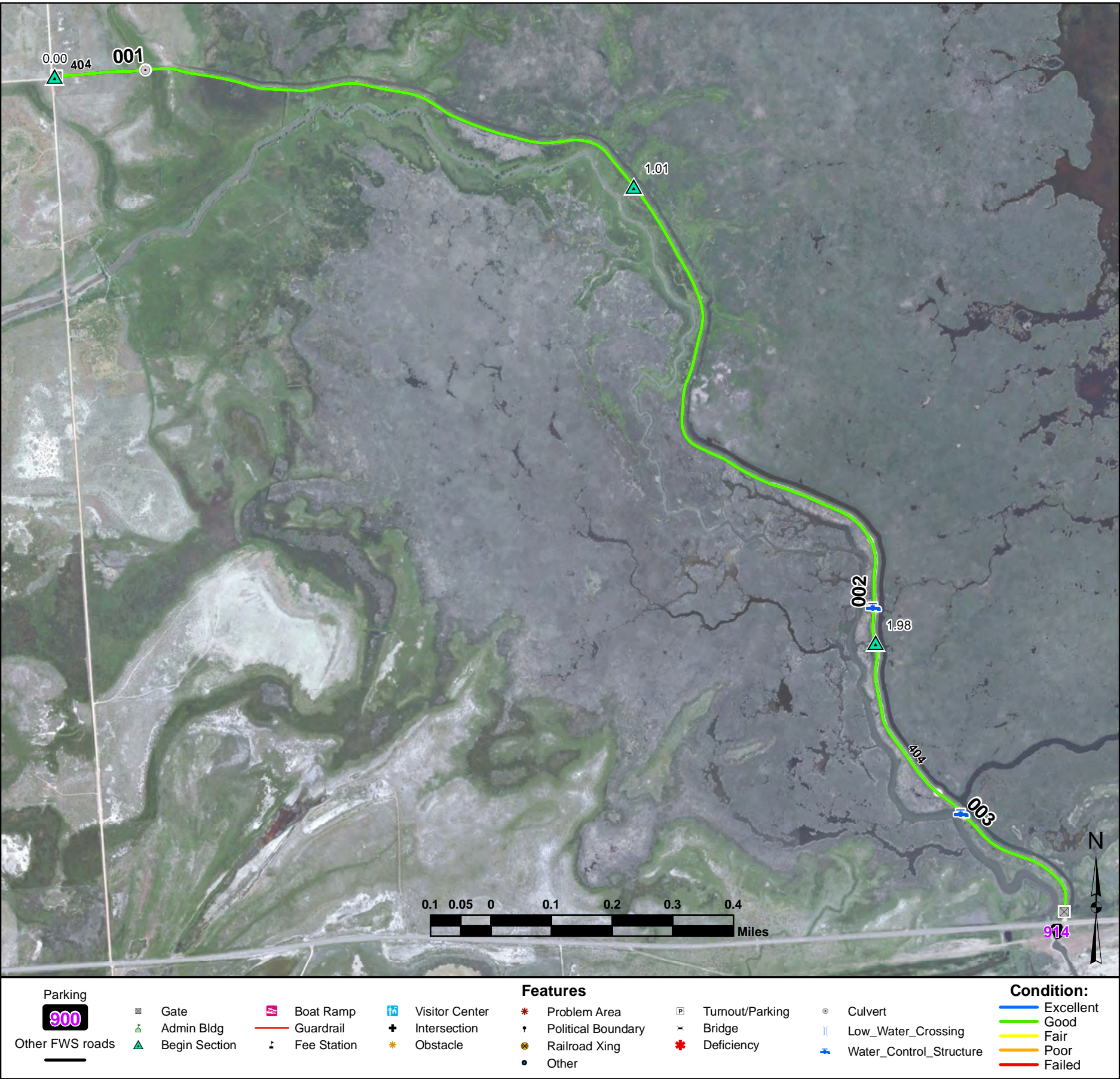
Route Number: 402

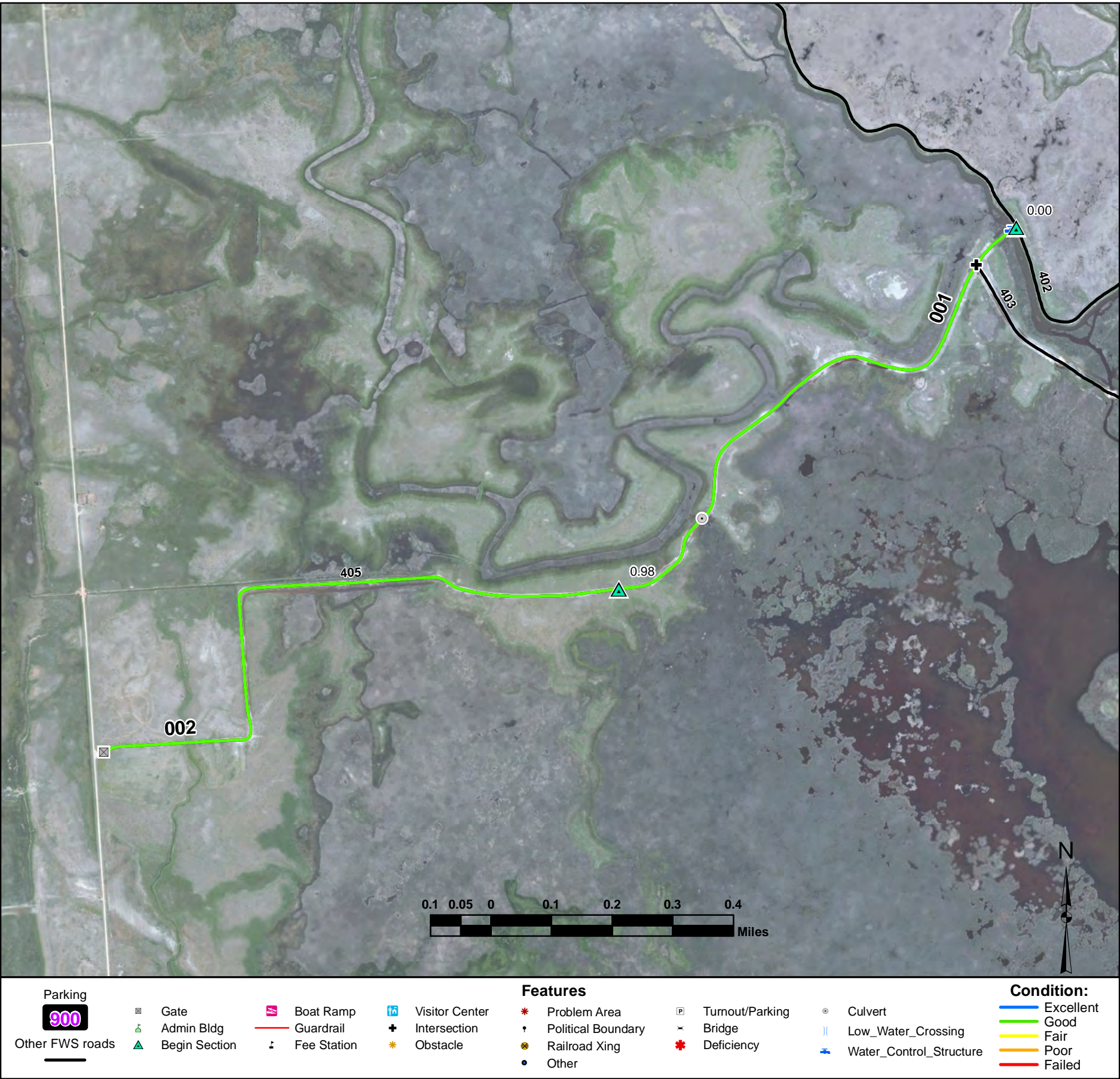
Total Route Mileage: 5.54

Asset Number	-				
Section Number	006				
Section Length (miles)	0.61				
Inspection Date	05-01-2013				
Surface Type	Native				
Number of Lanes	1				
Roadway Width (feet)	14				
Condition	Good				
Remaining Service Life (years)	5				
Estimated Cost to Repair	\$1,000				
Current Replacement Value	\$212,100				

Features	Mile Post	Features	Mile Post	Features	Mile Post	Features	Mile Post
Begin Section Water Control Structure	006-4.93 006-5.51						





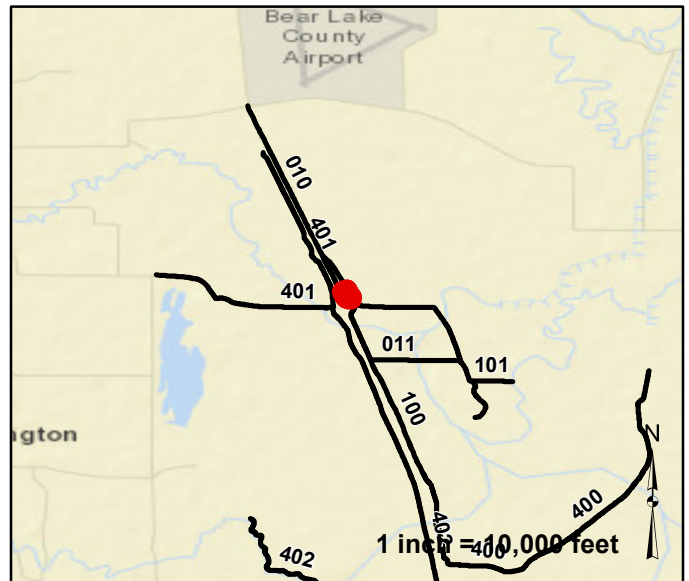


Route Number: 800

Shop Parking

From Refuge Entrance Road (Route 010)

Asset Number	Area (Sq Ft)	Spaces	Condition	Surface Type	Cost to Improve	Inspection Date	Current Replacement Value
-	72999	30	Good	Gravel	\$10,300	05-01-2013	\$339,900



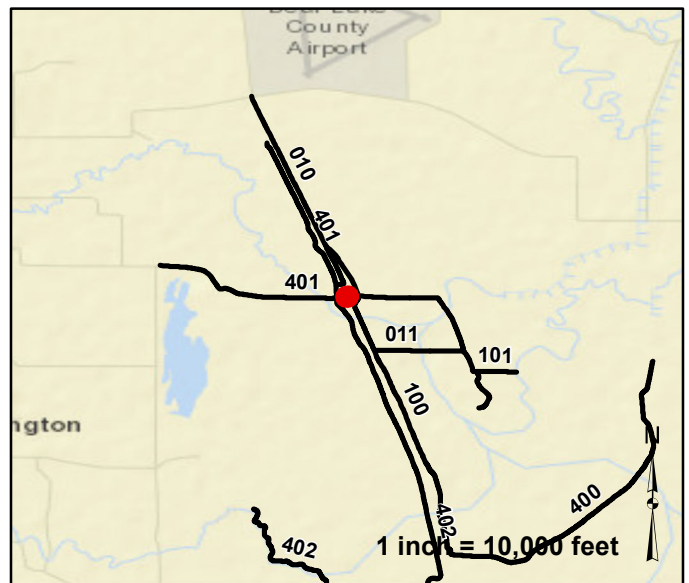
Parking		Features		Condition:	
	Gate		Boat Ramp		Excellent
Other FWS roads			Guardrail		Good
			Fee Station		Fair
			Visitor Center		Poor
			Problem Area		Failed
			Culvert		
			Low_Water_Crossing		
			Water_Control_Structure		

Route Number: 900

Paris Dike Parking

From Paris Dike Boat Ramp Access (Route 102)

Asset Number	Area (Sq Ft)	Spaces	Condition	Surface Type	Cost to Improve	Inspection Date	Current Replacement Value
10048845	4799	10	Fair	Gravel	\$1,200	05-01-2013	\$22,300



Parking		Features		Condition:	
	Gate		Visitor Center		Excellent
Other FWS roads	Admin Bldg	Guardrail	Other		Good
	Begin Section	Fee Station	Problem Area		Fair
			Culvert		Poor
			Low_Water_Crossing		Failed
			Water_Control_Structure		

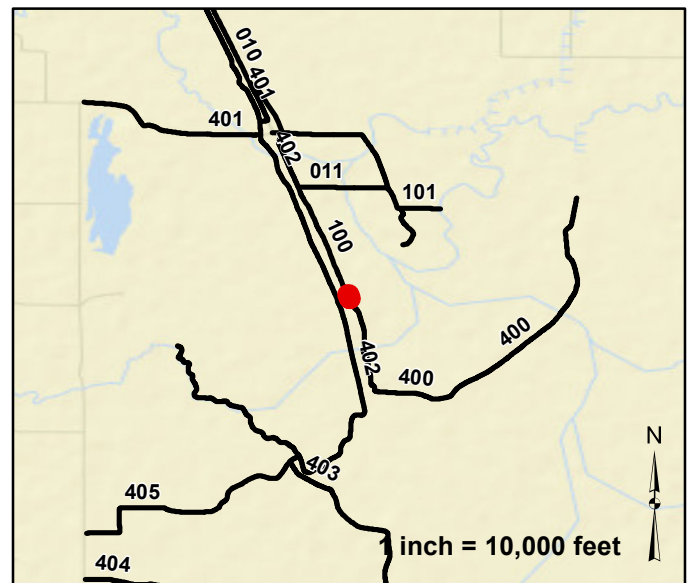
Route Number: 901 West Rainbow Parking

From West Rainbow Road (Route 100)

Asset Number	Area (Sq Ft)	Spaces	Condition	Surface Type	Cost to Improve	Inspection Date	Current Replacement Value
10055255	4042	10	Poor	Native	\$3,100	06-22-2007	\$8,100



No Photo Available



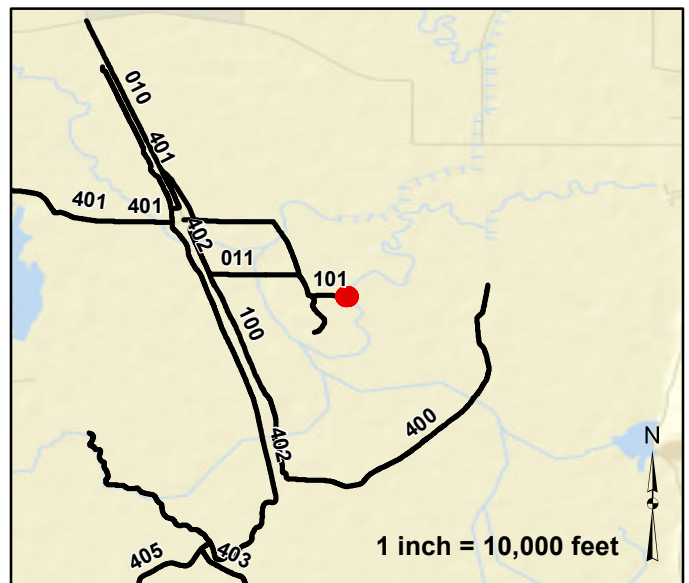
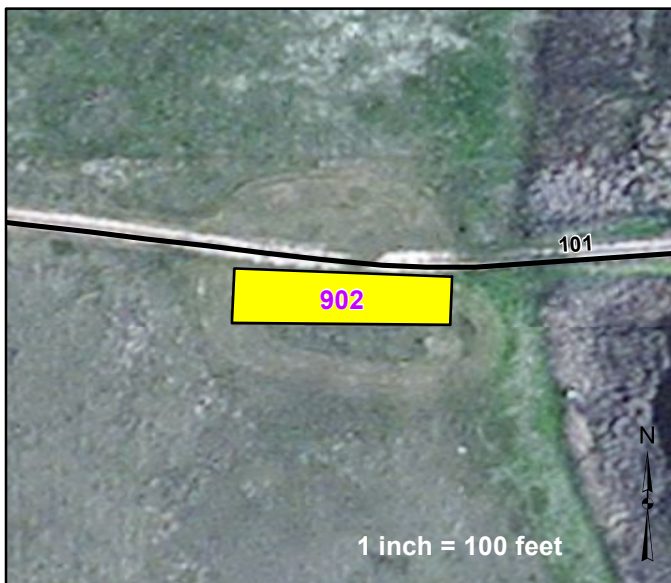
Parking		Features				Condition:	
Other FWS roads							

Route Number: 902

Hoageson Parking

From Hoageson Road (Route 101)

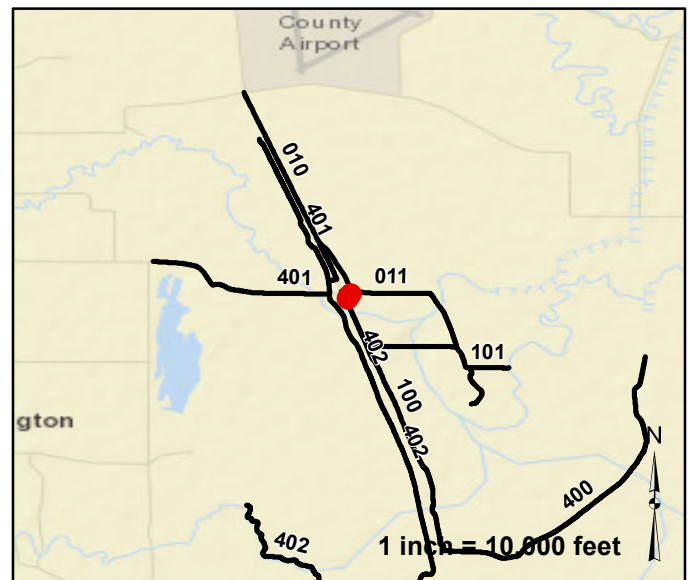
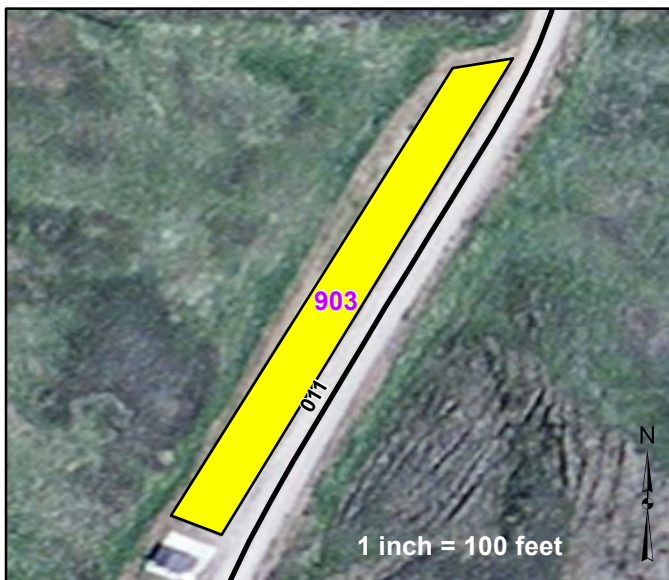
Asset Number	Area (Sq Ft)	Spaces	Condition	Surface Type	Cost to Improve	Inspection Date	Current Replacement Value
10047854	2237	5	Fair	Native	\$600	05-01-2013	\$4,500



Parking		Features				Condition:	
	Gate		Boat Ramp		Visitor Center		Excellent
Other FWS roads		Admin Bldg		Guardrail		Other	Good
		Begin Section		Fee Station		Problem Area	Fair
						Culvert	Poor
						Low_Water_Crossing	Failed
						Water_Control_Structure	

Route Number: 903
Rainbow Boat Launch Parking
 From Auto Tour Route (Route 011)

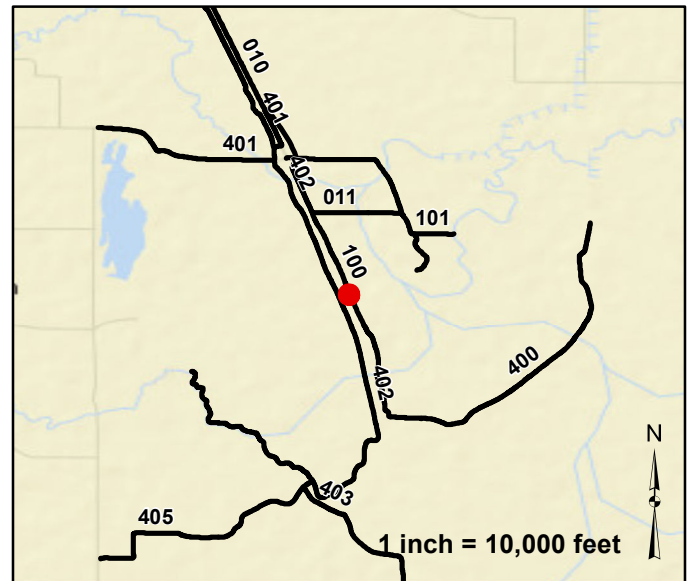
Asset Number	Area (Sq Ft)	Spaces	Condition	Surface Type	Cost to Improve	Inspection Date	Current Replacement Value
10048845	5407	15	Fair	Gravel	\$1,300	05-01-2013	\$25,200



Parking		Features				Condition:	
	Gate	Boat Ramp	Visitor Center	Culvert	Excellent		
Other FWS roads	Admin Bldg	Guardrail	Other	Low_Water_Crossing	Good		
	Begin Section	Fee Station	Problem Area	Water_Control_Structure	Fair		
					Poor		
					Failed		

Route Number: 905
Rainbow Trailhead Parking
From West Rainbow Road (Route 100)

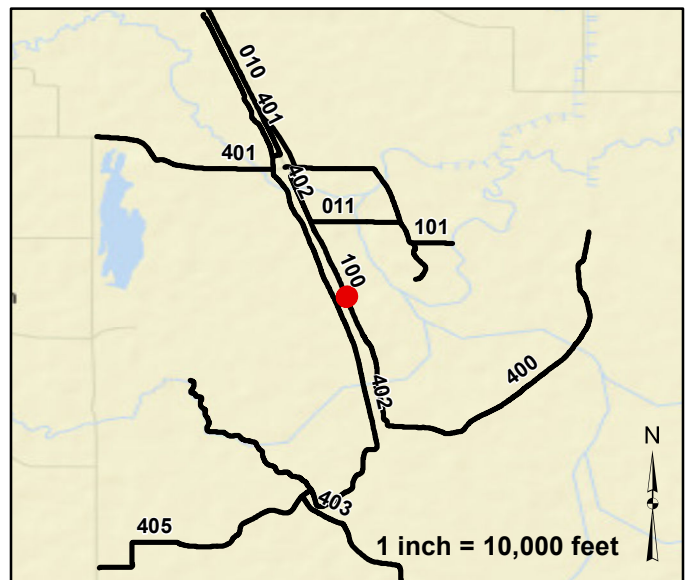
Asset Number	Area (Sq Ft)	Spaces	Condition	Surface Type	Cost to Improve	Inspection Date	Current Replacement Value
10048845	3515	10	Good	Gravel	\$500	05-01-2013	\$16,400



Parking		Features				Condition:	
	Gate		Boat Ramp		Visitor Center		Excellent
Other FWS roads	Admin Bldg		Guardrail		Other		Good
	Begin Section		Fee Station		Problem Area		Fair
					Culvert		Poor
					Low_Water_Crossing		Failed
					Water_Control_Structure		

Route Number: 906
Rainbow Hunting Blind Parking
From West Rainbow Road (Route 100)

Asset Number	Area (Sq Ft)	Spaces	Condition	Surface Type	Cost to Improve	Inspection Date	Current Replacement Value
10048845	2188	5	Good	Gravel	\$300	05-01-2013	\$10,200



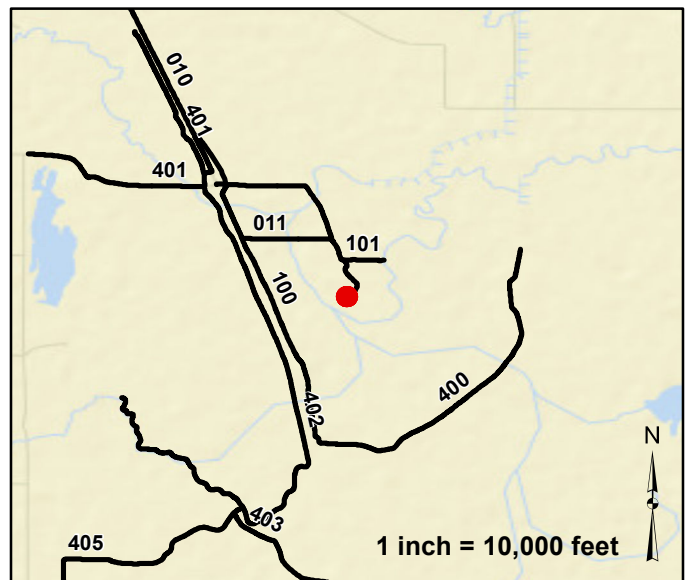
Parking		Features				Condition:	
	Gate		Boat Ramp		Visitor Center		Excellent
Other FWS roads		Admin Bldg		Guardrail		Other	Good
		Begin Section		Fee Station		Problem Area	Fair
						Culvert	Poor
						Low_Water_Crossing	Failed
						Water_Control_Structure	

Route Number: 907

Rainbow Trail East Parking

From Rainbow Trail East Access (Route 103)

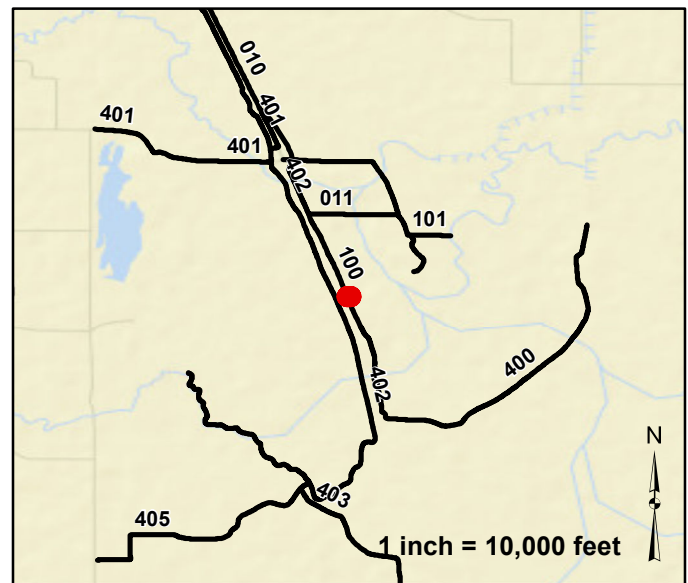
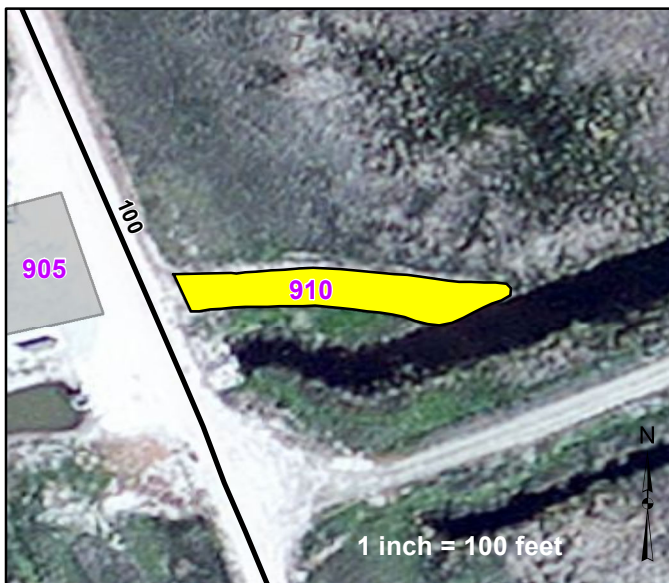
Asset Number	Area (Sq Ft)	Spaces	Condition	Surface Type	Cost to Improve	Inspection Date	Current Replacement Value
10047854	846	5	Fair	Native	\$200	05-01-2013	\$1,700



Parking		Features				Condition:	
	Gate		Boat Ramp		Visitor Center		Excellent
	Admin Bldg		Guardrail		Other		Good
	Begin Section		Fee Station		Problem Area		Fair
	Other FWS roads		Culvert		Low_Water_Crossing		Poor
			Water_Control_Structure				Failed

Route Number: 910
Rainbow Canoe Trail Launch Parking
From West Rainbow Road (Route 100)

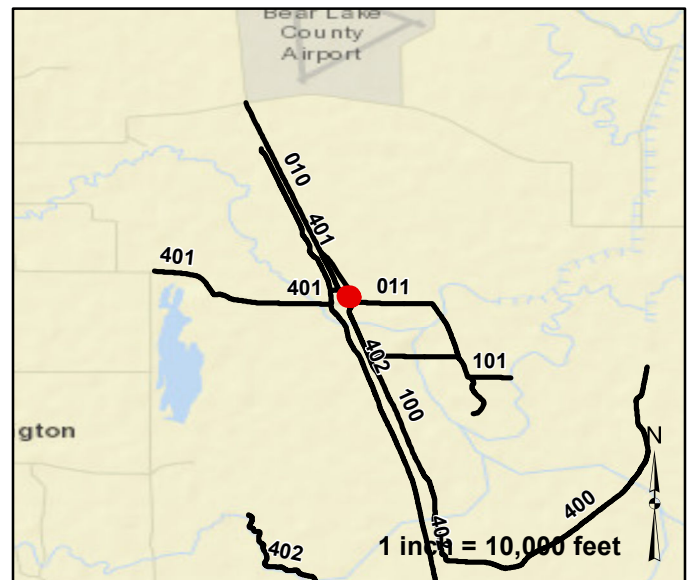
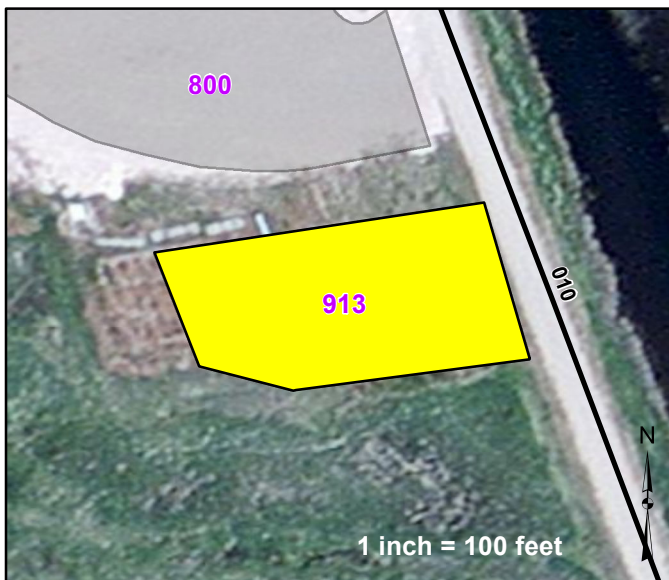
Asset Number	Area (Sq Ft)	Spaces	Condition	Surface Type	Cost to Improve	Inspection Date	Current Replacement Value
10055258	2415	5	Fair	Gravel	\$600	05-01-2013	\$11,200



Parking		Features		Condition:	
	Gate		Boat Ramp		Excellent
	Admin Bldg		Guardrail		Good
	Begin Section		Fee Station		Fair
	Other FWS roads		Visitor Center		Poor
			Problem Area		Failed
			Culvert		
			Low_Water_Crossing		
			Water_Control_Structure		

Route Number: 913
Paris Dike Boat Trailer Parking
 From Refuge Entrance Road (Route 010)

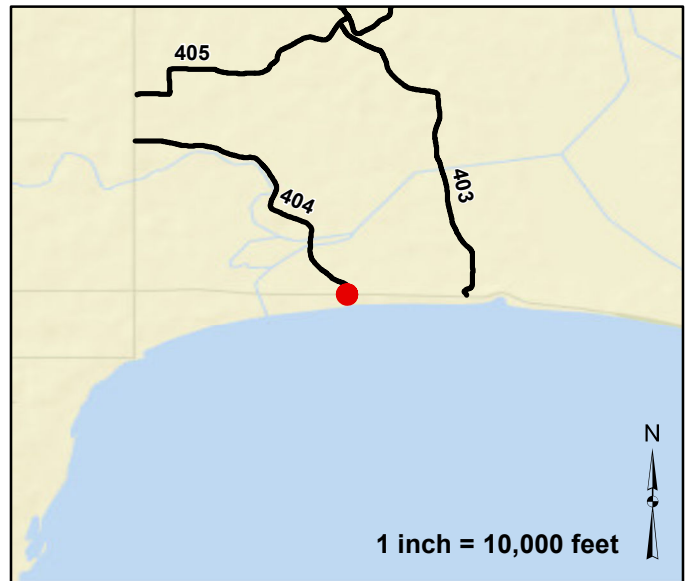
Asset Number	Area (Sq Ft)	Spaces	Condition	Surface Type	Cost to Improve	Inspection Date	Current Replacement Value
10005911	10119	15	Fair	Gravel	\$2,500	05-01-2013	\$47,100



Parking		Features		Condition:	
	Gate		Visitor Center		Excellent
Other FWS roads	Admin Bldg		Other		Good
	Begin Section		Problem Area		Fair
			Culvert		Poor
			Low_Water_Crossing		Failed
			Water_Control_Structure		

Route Number: 914
Fish Ladder Parking
From North Beach Road

Asset Number	Area (Sq Ft)	Spaces	Condition	Surface Type	Cost to Improve	Inspection Date	Current Replacement Value
-	2481	5	Fair	Gravel	\$600	05-01-2013	\$11,600



Parking		Features		Condition:	
	Gate		Boat Ramp		Excellent
	Admin Bldg		Guardrail		Good
	Begin Section		Fee Station		Fair
	Other FWS roads		Visitor Center		Poor
			Other		Failed
			Problem Area		
			Culvert		
			Low_Water_Crossing		
			Water_Control_Structure		

Bear Lake NWR Bridge Inventory					
Rte #	Milepost	NBIS #	Sufficiency Rating	Functionally Obsolete	Structurally Deficient
401	0.37	N/A	N/A	N/A	N/A

ROUTE: 010

Features Photographs



Photo: BELA_C4_0691 Route: 010-001-0.0
Begin Section



Photo: BELA_C4_0692 Route: 010-001-0.01
Metal Cattle Guard



Photo: BELA_C4_0693 Route: 010-001-0.29
Metal WCS Flashboard Riser 50ft long 48in dia. 4ft deep



Photo: BELA_C4_0694 Route: 010-001-0.29
Metal WCS Flashboard Riser 50ft long 48in dia. 4ft deep



Photo: BELA_C4_0695 Route: 010-002-0.83
Begin Section



Photo: BELA_C4_0696 Route: 010-002-2.1
Metal WCS Flashboard Riser 50ft long 36in dia. 4ft deep
8-001

ROUTE: 010

Features Photographs



Photo: BELA_C4_0697 Route: 010-002-2.1

Metal WCS Flashboard Riser 50ft long 36in dia. 4ft deep

ROUTE: 011

Features Photographs



Photo: BELA_C4_0699 Route: 011-001-0.0
Begin Section



Photo: BELA_C4_0700 Route: 011-001-0.01
Metal WCS Screw Gate 50ft long 36in dia. 4ft deep



Photo: BELA_C4_0701 Route: 011-001-0.01
Metal WCS Screw Gate 50ft long 36in dia. 4ft deep



Photo: BELA_C4_0703 Route: 011-001-0.79
Metal WCS Screw Gate 40ft long 48in dia. 4ft deep



Photo: BELA_C4_0704 Route: 011-001-0.79
Metal WCS Screw Gate 40ft long 48in dia. 4ft deep



Photo: BELA_C4_0706 Route: 011-002-0.97
Begin Section

ROUTE: 011

Features Photographs



Photo: BELA_C4_0707 Route: 011-002-1.75
Metal Culvert 40ft long 36in dia. 4ft deep



Photo: BELA_C4_0708 Route: 011-002-1.75
Metal Culvert 40ft long 36in dia. 4ft deep



Photo: BELA_C4_0710 Route: 011-003-1.98
Begin Section

ROUTE: 100

Features Photographs



05/01/2013

Photo: BELA_C4_0713 Route: 100-001-0.0
Begin Section



05/01/2013

Photo: BELA_C4_0714 Route: 100-001-0.87
Metal WCS Screw Gate 50ft long 60in dia. 3ft deep



05/01/2013

Photo: BELA_C4_0715 Route: 100-001-0.87
Metal WCS Screw Gate 50ft long 60in dia. 3ft deep

ROUTE: 101

Features Photographs



Photo: BELA_C4_0737 Route: 101-001-0.0
Begin Section



Photo: BELA_C4_0739 Route: 101-001-0.01
Metal Culvert 20ft long 12in dia. 1ft deep



Photo: BELA_C4_0740 Route: 101-001-0.01
Metal Culvert 20ft long 12in dia. 1ft deep



Photo: BELA_C4_0738 Route: 101-001-0.01
Metal Cable Gate



Photo: BELA_C4_0741 Route: 101-001-0.18
Metal Culvert 20ft long 12in dia. 1ft deep



Photo: BELA_C4_0742 Route: 101-001-0.18
Metal Culvert 20ft long 12in dia. 1ft deep

ROUTE: 101

Features Photographs



Photo: BELA_C4_0743 Route: 101-001-0.24
Metal Culvert 20ft long 6in dia. 1ft deep



Photo: BELA_C4_0744 Route: 101-001-0.24
Metal Culvert 20ft long 6in dia. 1ft deep



Photo: BELA_C4_0745 Route: 101-001-0.38
Metal Culvert 20ft long 6in dia. 1ft deep



Photo: BELA_C4_0746 Route: 101-001-0.38
Metal Culvert 20ft long 6in dia. 1ft deep



Photo: BELA_C4_0747 Route: 101-001-0.52
Metal Culvert 20ft long 24in dia. 1ft deep



Photo: BELA_C4_0748 Route: 101-001-0.52
Metal Culvert 20ft long 24in dia. 1ft deep

ROUTE: 102

Features Photographs



Photo: BELA_C4_0702 Route: 102-001-0.0
Begin Section

ROUTE: 103

Features Photographs



Photo: BELA_C4_0751 Route: 103-001-0.0
Begin Section



Photo: BELA_C4_0752 Route: 103-001-0.37
Metal Culvert 20ft long 12in dia. 1ft deep



Photo: BELA_C4_0753 Route: 103-001-0.37
Metal Culvert 20ft long 12in dia. 1ft deep

ROUTE: 400

Features Photographs



Photo: BELA_C4_0716 Route: 400-001-0.0
Begin Section



Photo: BELA_C4_0717 Route: 400-001-0.0
Metal Open Rail Gate



Photo: BELA_C4_0718 Route: 400-001-0.06
Metal WCS Screw Gate 60ft long 48in dia. 4ft deep



Photo: BELA_C4_0719 Route: 400-001-0.06
Metal WCS Screw Gate 60ft long 48in dia. 4ft deep



Photo: BELA_C4_0720 Route: 400-002-0.95
Begin Section



Photo: BELA_C4_0721 Route: 400-002-1.7
Metal WCS Screw Gate 50ft long 48in dia. 4ft deep

ROUTE: 400

Features Photographs



Photo: BELA_C4_0722 Route: 400-002-1.7
Metal WCS Screw Gate 50ft long 48in dia. 4ft deep



Photo: BELA_C4_0723 Route: 400-003-1.96
Begin Section



Photo: BELA_C4_0724 Route: 400-003-2.17
Metal WCS Screw Gate 50ft long 48in dia. 4ft deep



Photo: BELA_C4_0725 Route: 400-003-2.17
Metal WCS Screw Gate 50ft long 48in dia. 4ft deep



Photo: BELA_C4_0726 Route: 400-003-2.78
Metal WCS Screw Gate 50ft long 48in dia. 4ft deep



Photo: BELA_C4_0727 Route: 400-003-2.78
Metal WCS Screw Gate 50ft long 48in dia. 4ft deep

ROUTE: 400

Features Photographs



Photo: BELA_C4_0728 Route: 400-004-2.95
Begin Section

ROUTE: 401

Features Photographs



Photo: BELA_C4_0760 Route: 401-001-0.0
Begin Section



Photo: BELA_C4_0761 Route: 401-001-0.35
Metal Chain Link Gate



Photo: BELA_C4_0762 Route: 401-001-0.37
Concrete Bridge NBIS:NA



Photo: BELA_C4_0763 Route: 401-002-0.96
Begin Section



Photo: BELA_C4_0764 Route: 401-002-1.47
Metal Culvert 20ft long 24in dia. 1ft deep



Photo: BELA_C4_0765 Route: 401-002-1.47
Metal Culvert 20ft long 24in dia. 1ft deep

ROUTE: 401

Features Photographs



Photo: BELA_C4_0766 Route: 401-002-1.99
Metal Open Rail Gate



Photo: BELA_C4_0771 Route: 401-003-0.41
Begin Section



Photo: BELA_C4_0772 Route: 401-003-0.49
Metal WCS Flashboard Riser 30ft long 36in dia. 3ft deep



Photo: BELA_C4_0773 Route: 401-003-0.49
Metal WCS Flashboard Riser 30ft long 36in dia. 3ft deep



Photo: BELA_C4_0774 Route: 401-004-1.4
Begin Section



Photo: BELA_C4_0775 Route: 401-004-1.56
Metal WCS Flashboard Riser 40ft long 36in dia. 3ft deep
8-014

ROUTE: 401

Features Photographs



Photo: BELA_C4_0776 Route: 401-004-1.56
Metal WCS Flashboard Riser 40ft long 36in dia. 3ft deep



Photo: BELA_C4_0777 Route: 401-004-1.92
Metal Open Rail Gate

ROUTE: 402

Features Photographs



05/01/2013

Photo: BELA_C4_0778 Route: 402-001-0.0
Begin Section



05/01/2013

Photo: BELA_C4_0780 Route: 402-001-0.02
Metal WCS Screw Gate 50ft long 36in dia. 3ft deep



05/01/2013

Photo: BELA_C4_0781 Route: 402-001-0.02
Metal WCS Screw Gate 50ft long 36in dia. 3ft deep



05/01/2013

Photo: BELA_C4_0782 Route: 402-001-0.86
Metal WCS Screw Gate 50ft long 36in dia. 3ft deep



05/01/2013

Photo: BELA_C4_0783 Route: 402-001-0.86
Metal WCS Screw Gate 50ft long 36in dia. 3ft deep



05/01/2013

Photo: BELA_C4_0784 Route: 402-002-1.04
Begin Section

ROUTE: 402

Features Photographs



Photo: BELA_C4_0785 Route: 402-002-1.71
Metal WCS Screw Gate 50ft long 36in dia. 4ft deep



Photo: BELA_C4_0786 Route: 402-002-1.71
Metal WCS Screw Gate 50ft long 36in dia. 4ft deep



Photo: BELA_C4_0787 Route: 402-003-2.03
Begin Section



Photo: BELA_C4_0788 Route: 402-004-3.02
Begin Section



Photo: BELA_C4_0789 Route: 402-004-3.93
Metal WCS Screw Gate 50ft long 48in dia. 3ft deep



Photo: BELA_C4_0790 Route: 402-004-3.93
Metal WCS Screw Gate 50ft long 48in dia. 3ft deep

ROUTE: 402

Features Photographs



Photo: BELA_C4_0791 Route: 402-005-3.93
Begin Section



Photo: BELA_C4_0792 Route: 402-006-4.93
Begin Section



Photo: BELA_C4_0793 Route: 402-006-5.51
Metal WCS Flashboard Riser 20ft long 24in dia. 1ft deep



Photo: BELA_C4_0794 Route: 402-006-5.51
Metal WCS Flashboard Riser 20ft long 24in dia. 1ft deep

ROUTE: 403

Features Photographs



Photo: BELA_C4_0798 Route: 403-001-0.0
Begin Section



Photo: BELA_C4_0799 Route: 403-001-0.31
2 Metal WCS Flashboard Riser 50ft long 60in dia. 4ft deep



Photo: BELA_C4_0800 Route: 403-001-0.31
2 Metal WCS Flashboard Riser 50ft long 60in dia. 4ft deep



Photo: BELA_C4_0801 Route: 403-002-1.0
Begin Section



Photo: BELA_C4_0802 Route: 403-002-1.52
2 Metal WCS Screw Gate 60ft long 60in dia. 4ft deep



Photo: BELA_C4_0803 Route: 403-002-1.52
2 Metal WCS Screw Gate 60ft long 60in dia. 4ft deep
8-019

ROUTE: 403

Features Photographs



Photo: BELA_C4_0804 Route: 403-003-2.05
Begin Section



Photo: BELA_C4_0805 Route: 403-003-2.66
2 Metal WCS Screw Gate 60ft long 60in dia. 3ft deep



Photo: BELA_C4_0806 Route: 403-003-2.66
2 Metal WCS Screw Gate 60ft long 60in dia. 3ft deep



Photo: BELA_C4_0807 Route: 403-003-3.14
Metal Open Rail Gate

ROUTE: 404

Features Photographs



Photo: BELA_C4_0812 Route: 404-001-0.0
Begin Section



Photo: BELA_C4_0813 Route: 404-001-0.0
Metal Open Rail Gate



Photo: BELA_C4_0814 Route: 404-001-0.16
Metal Culvert 20ft long 24in dia. 1ft deep



Photo: BELA_C4_0815 Route: 404-001-0.16
Metal Culvert 20ft long 24in dia. 1ft deep



Photo: BELA_C4_0816 Route: 404-002-1.01
Begin Section



Photo: BELA_C4_0817 Route: 404-002-1.93
2 Metal WCS Flashboard Riser 60ft long 60in dia. 3ft deep
8-021

ROUTE: 404

Features Photographs



Photo: BELA_C4_0818 Route: 404-002-1.93
2 Metal WCS Flashboard Riser 60ft long 60in dia. 3ft deep



Photo: BELA_C4_0819 Route: 404-003-1.98
Begin Section



Photo: BELA_C4_0820 Route: 404-003-2.3
2 Metal WCS Flashboard Riser 60ft long 60in dia. 4ft deep



Photo: BELA_C4_0821 Route: 404-003-2.3
2 Metal WCS Flashboard Riser 60ft long 60in dia. 4ft deep



Photo: BELA_C4_0822 Route: 404-003-2.56
Metal Open Rail Gate

ROUTE: 405

Features Photographs



Photo: BELA_C4_0795 Route: 405-001-0.0
Begin Section



Photo: BELA_C4_0796 Route: 405-001-0.01
2 Metal WCS Flashboard Riser 60ft long 60in dia. 3ft deep



Photo: BELA_C4_0797 Route: 405-001-0.01
2 Metal WCS Flashboard Riser 60ft long 60in dia. 3ft deep



Photo: BELA_C4_0808 Route: 405-001-0.78
Metal Culvert 40ft long 48in dia. 2ft deep



Photo: BELA_C4_0809 Route: 405-001-0.78
Metal Culvert 40ft long 48in dia. 2ft deep



Photo: BELA_C4_0810 Route: 405-002-0.98
Begin Section

ROUTE: 405

Features Photographs



Photo: BELA_C4_0811 Route: 405-002-2.09
Metal Open Rail Gate

ROUTE: 800

Features Photographs



Photo: BELA_C4_0831 Route: 800
Metal Chain Link Gate



Photo: BELA_C4_0832 Route: 800
Metal Chain Link Gate



Photo: BELA_C4_0833 Route: 800
Metal Chain Link Gate

Accident Summary

Number of Accidents Reported	Timespan of Accidents	Injuries	Fatalities
0	No Accidents to Report	0	0

APPENDIX

TABLE 1 - GENERAL FWS ROAD FUNCTIONAL CLASSIFICATION	
Class I	Principal Refuge Road (Public Roads) - Routes that constitute the main access route, main auto tour route, or thoroughfare for refuge visitors. These routes are accessible by 2WD vehicles. Routes are numbered from 10 to 99.
Class II	Connector Refuge Road (Public Roads) - Routes that provide circulation within the refuge. These routes can also provide access to areas of scenic, scientific, recreational or cultural interest, such as overlooks, campgrounds, education centers, etc. These routes are accessible by 2WD vehicles. Routes are numbered from 100 to 199.
Class III	Special Purpose Refuge Road (Public Roads) - Roads that provide circulation within special use areas such as campgrounds or public concessionaire facilities or access to remote areas of the refuge. These routes may not be 2WD accessible. Routes are numbered from 200 to 299
Class IV	Administrative Access Road (Administrative Roads) - Routes intended for access to administrative developments or structures such as maintenance offices, employee quarters, or utility areas. These routes are accessible by 2WD vehicles. These routes may restrict access to the general public. Routes are numbered from 300 to 399.
Class V	Restricted Road (Administrative Roads) - Routes normally closed to the public, such as maintenance roads, service roads, patrol roads, and fire breaks. These routes may be open to the public for a short period of time for a special use, such as hunting access. These routes may not be 2WD accessible. Routes are numbered from 400 to 499.

A refuge road system contains those routes within or giving access to a refuge or other unit of the FWS that are administered by the FWS, or by the Service in cooperation with other agencies. The assignment of a functional classification (FC) to a refuge road is not based on traffic volumes or design speed, but on the intended use or function of that route

DESCRIPTION OF RATING SYSTEM

Rating Data is collected on four different surface types: Asphalt, Concrete, Gravel, and Native. The Utah LTAP Center's Remaining Service Life (RSL) system is used for all surface types. The RSL system is based on the Strategic Highway Research Program's (SHRP) Distress Identification Manual.

Asphalt Rating System

Data is collected on the following distresses and conditions:

- **Fatigue Cracking** - Interconnected cracks forming small irregular shapes.
- **Longitudinal Cracking** - Cracks running parallel with the roadway, in the direction of traffic.
- **Transverse Cracking** - Cracks perpendicular to the roadway, going across the lane or lanes.
- **Block Cracking** - Interconnected cracks forming large blocks.
- **Edge Cracking** - Cracks running along the edge of the pavement surface.
- **Patches** - Original surface repaired with new asphalt patch material.
- **Potholes** - Holes or depressions in the pavement.
- **Rutting** - surface depressions in the wheel paths.
- **Roughness** - Evenness of pavement for serviceability.
- **Drainage** - Ability of the road surface to drain water based on proper slope.

A Condition Rating value is calculated for each homogenous pavement section, and can be up to 1 mile in length.

Rating Index Formula

Fatigue, longitudinal, transverse, block, and edge cracking, along with patching and potholes are rated on a 0 - 9 scale (0 = no distress, 9 = maximum distress). The rating given is based on the extent and the severity of the distress. Rutting, roughness, and drainage are rated on a 0 - 3 scale (0 = excellent, 3 = poor). Each distress type has given Remaining Service Life (RSL) values (in years) based on the rating for that particular distress. The distress with the rating resulting in the lowest RSL value is considered to be the governing distress. That value is then assigned as the RSL of the road segment.

Concrete Rating System

Data is collected on the following distresses and conditions:

- **Spalling of Joints** - Chipping, breaking, or cracking of slab edges
- **Joint Seal Damage** - Any damage or condition that enables materials or water to infiltrate into the joint from the surface.
- **Corner Breaks** - A portion of the slab separated by a crack that intersects the adjacent transverse and longitudinal joints, forming approximately a 45° angle to the direction.
- **Broken Slabs** - Faulting and/or cracking localized to individual slabs.

- **Faulting** – Difference in elevation across a crack or joint.
- **Longitudinal Cracking** – Cracks in the pavement running parallel to road.
- **Transverse Cracking** - Cracks in the pavement running perpendicular to the direction of traffic.
- **Patch Deterioration** – Faulting, settling, or cracking of previously placed patch
- **Map Cracking** – A series of cracks that extend only into the upper surface of the Slab

A Condition Rating value is calculated for each homogenous pavement section, and can be up to 1 mile in length.

Rating Index Formula

The rating procedure for concrete pavement is the same as that for asphalt pavement described previously. Each of the distresses described above are rated on the same 0 – 9 scale. The governing distress is then determined and the RSL associated with that distress is assigned to the road segment.

Gravel and Native Rating System

Data is collected on the following distresses and conditions:

- **Cross Section (Crown)** - Roadway built so that the center is higher than the shoulder, to prevent water from pooling on roadway.
- **Roadside Drainage** - Roadside ditches and culverts to handle water flow and prevent pooling on the roadside.
- **Corrugations (Washboarding)** - Small trenches or holes developing perpendicular to the roadway.
- **Potholes** - Holes or depressions in the roadway.
- **Rutting** - Depressions running parallel with the roadway, in the wheelpaths.
- **Dust** - Amount of dust caused by traffic.
- **Loose Aggregate (Gravel Only)** - Loose gravel, typically piled up on the roadway edges or centerline.

A Condition Rating value is calculated for each homogenous pavement section, and can be up to 1 mile in length.

Rating Index Formula

The rating procedure for unpaved roads is the same as that for asphalt and concrete pavements described previously. Of the distresses described above, corrugations, potholes, rutting, and loose aggregate are rated on the same 0 – 9 scale previously mentioned. Cross section, roadside drainage, and dust are rated on the same 0 – 3 scale described for asphalt pavement. The governing distress is then determined and the RSL associated with that distress is assigned to the road segment.

Condition Descriptions by Surface Type

The following definitions are used to describe pavement condition for the various surface types. These are general guidelines for condition indications.

Asphalt

Excellent – Recently constructed or overlaid road where construction or overlay was performed correctly- No maintenance required. RSL = 19-20 years.

Good – Low extent longitudinal and transverse cracks. All cracks are 1/4" or less with little or no crack erosion. Patches are in good condition and applied correctly. Routine Maintenance recommended. RSL = 13-18 years.

Fair - Roads are in good structural condition with little or no fatigue cracking. Longitudinal, transverse, and edge cracking is at medium extent and severity. Block cracking is not extensive. Any patches are in good condition. Preventative maintenance recommended. RSL = 7-12 years.

Poor - Road beginning to show signs of structural distress. Fatigue cracking is medium to high extent and medium severity. Cracking will be severe. Surface may have severe block cracking and show. Patches are in fair to poor condition. There is moderate distortion or rutting and occasional potholes. Rehabilitation recommended. RSL = 1-6 years.

Failed - Road is severely deteriorated. Signs of structural failure appear along with severe and extensive fatigue cracking, distortion, potholes, or extensive patches in poor condition. Reconstruction recommended. RSL = 0 years.

Concrete

Excellent - New pavement. No maintenance required. RSL = 19-20 years

Good - First signs of transverse cracking, patch or repair, more extensive pop-outs, or scaling. Sealing or routine maintenance recommended. RSL = 13-18 years.

Fair – Pavement has joint or crack spalling, and/or faulting, along with cracking at corners with broken pieces. Any Patches are in fair condition and faulting is at a minimum. Preventative maintenance recommended. RSL = 7-12 years.

Poor - Joints and cracks are open 1 inch, spalled, or patched. Faulting is more severe. Rehabilitation recommended. RSL = 1-6 years.

Failed - Most slabs have failed structurally, and faulting is severe. Reconstruction recommended. RSL = 0 years.11-9

The following table shows the relationship between RSL and condition.

SUBJECTIVE CONDITION RATING FOR REMAINING SERVICE LIFE (Asphalt and Concrete Pavements)								
	FAILED	POOR		FAIR		GOOD		EXCELLENT
RSL Years	0	1-3	4-6	7-9	10-12	13-15	16-18	19-20

Gravel and Native

Note - Native surfaces do not have a gravel layer.

Excellent - Newly constructed road that has been constructed properly with proper crown, drainage and gravel layer. Little or no distress. No maintenance recommended. RSL = 8-10 years.

Good - Crown, drainage provisions, and gravel layer are in good condition. Distress limited to traffic effects such as dust, loose aggregate, and low severity corrugations (wash boarding). RSL = 5-7 years.

Fair - Adequate drainage and crown through majority of roadway. Crown repair, ditch improvement may be necessary. Road has more severe corrugations and potholes. Preventative maintenance recommended. RSL = 3-4 years.

Poor - Travel at slow speeds is necessary. Additional gravel layer needed to carry traffic. Poor crown. Ditching is inadequate and rutting is extensive and severe. Rehabilitation recommended. RSL = 1-2 years.

Failed - Travel is difficult, and road may be closed at times. Rutting and Corrugations are very severe. Total Reconstruction of road is recommended. RSL = 0 years.

The following table shows the RSL values for gravel and native roads in terms of excellent, good, fair, poor, and failed condition.

SUBJECTIVE CONDITION RATING FOR REMAINING SERVICE LIFE (Gravel and Native Surfaces)					
	FAILED	POOR	FAIR	GOOD	EXCELLENT
RSL Years	0	1-2	3-4	5-7	8-10

NATIVE PRIMITIVE/IMPROVED RATING SHEET

<u>Cross Section (Crown)*</u>			
Severity	Condition		Description
	No Defects	0	Crown 4-6" with no restriction of water flow from centerline to ditch.
	Minor Defects	1	Inadequate or inconsistent crown. Drainage to ditch may be restricted.
	Moderate Defects	2	Flat crown, drainage to ditch restricted.
	Major Defects	3	Reverse crown, bowl-shaped road, drainage on roadway

<u>Rutting</u>				
Severity	Extent (Length)			
	No Defects	Low <10%	Med 10-30%	High >30%
	Low < 6"	1	2	3
	Med 6-12"	4	5	6
	High > 12"	7	8	9

<u>Roadside Drainage*</u>			
Severity	Condition		Description
	No Defects	0	Wide, deep ditches (>4') with no restriction to water flow.
	Minor Defects	1	Adequate ditches (>2' deep), minor obstructions restrict water flow.
	Moderate Defects	2	Shallow, narrow and obstructed ditches. Minor erosion of road.
	Major Defects	3	No ditch, drainage on roadway with moderate to severe erosion.

<u>Potholes</u>				
Severity	Extent (Area)			
	No Defects	Low <10%	Med 10-30%	High >30%
	Low < 6"	1	2	3
	Med 6-12"	4	5	6
	High > 12"	7	8	9

<u>Dust</u>			
Severity	Condition		Description
	No Defects	0	No obstruction to sight distance.
	Minor Defects	1	Sight distance > 550'
	Moderate Defects	2	Sight distance 225'-550'
	Major Defects	3	Sight distance < 225'

<u>Corrugations</u>				
Severity	Extent (Length)			
	No Defects	Low <10%	Med 10-30%	High >30%
	Low < 3"	1	2	3
	Med 3-6"	4	5	6
	High > 6"	7	8	9

* Crown and Drainage are not rated for roads that have no constructed crown or drainage. This applies to Native and Gravel roads.

GRAVEL RATING SHEET

Cross Section (Crown)

Severity	Condition		Description
	No Defects	0	Crown 4-6" with no restriction of water flow from centerline to ditch.
	Minor Defects	1	Inadequate or inconsistent crown. Drainage to ditch may be restricted.
	Moderate Defects	2	Flat crown, drainage to ditch restricted.
	Major Defects	3	Reverse crown, bowl-shaped road, drainage on roadway

Rutting

Severity	Extent (Length)			
	No Defects	Low <10%	Med 10-30%	High >30%
	Low < 1"	1	2	3
	Med 1-3"	4	5	6
	High > 3"	7	8	9

Roadside Drainage

Severity	Condition		Description
	No Defects	0	Wide, deep ditches (>4') with no restriction to water flow.
	Minor Defects	1	Adequate ditches (>2' deep), minor obstructions restrict water flow.
	Moderate Defects	2	Shallow, narrow and obstructed ditches. Minor erosion of road.
	Major Defects	3	No ditch, drainage on roadway with moderate to severe erosion.

Potholes

Severity	Extent (Area)			
	No Defects	Low <10%	Med 10-30%	High >30%
	Low < 1"	1	2	3
	Med 1-3"	4	5	6
	High > 3"	7	8	9

Dust

Severity	Condition		Description
	No Defects	0	No obstruction to sight distance.
	Minor Defects	1	Sight distance > 550'
	Moderate Defects	2	Sight distance 225'-550'
	Major Defects	3	Sight distance < 225'

Corrugations

Severity	Extent (Length)			
	No Defects	Low <10%	Med 10-30%	High >30%
	Low < 2"	1	2	3
	Med 2-4"	4	5	6
	High > 4"	7	8	9

* Crown and Drainage are not rated for roads that have no constructed crown or drainage. This applies to Native and Gravel roads.

Loose Aggregate

Severity	Extent (Area)			
	No Defects	Low <10%	Med 10-30%	High >30%
	Low < 1"	1	2	3
	Med 1-3"	4	5	6
	High > 3"	7	8	9

ASPHALT RATING SHEET

Fatigue Cracking

Severity	Extent			
	No Defects	Low 1 crack WP	Med 2 cracks WP	High >30% length
	Low-Cracks < 1/4"	1	2	3
	Med-Cracks 1/4-3/4"	4	5	6
	High-Cracks > 3/4"	7	8	9

Edge Cracking

Severity	Extent (Length)			
	No Defects	Low <10%	Med 10-30%	High >30%
	0-6" from curb	1	2	3
	6-18" from curb	4	5	6
	> 18" from curb	7	8	9

Longitudinal Cracking

Severity	Extent			
	No Defects	Low 1 crack full length	Med 2 cracks full length	High >2 cracks full length
	Low-Cracks < 1/4"	1	2	3
	Med-Cracks 1/4-3/4"	4	5	6
	High-Cracks > 3/4"	7	8	9

Block Cracking

Severity	Extent (Length)			
	No Defects	Low > 15x15' squares	Med 15-10' squares	High <10x10' squares
	Low-Cracks < 1/4"	1	2	3
	Med-Cracks 1/4-3/4"	4	5	6
	High-Cracks > 3/4"	7	8	9

Transverse Cracking

Severity	Extent (ft between cracks)			
	No Defects	Low > 200'	Med 200-50'	High < 50'
	Low-Cracks < 1/4"	1	2	3
	Med-Cracks 1/4-3/4"	4	5	6
	High-Cracks > 3/4"	7	8	9

Utility Cuts

Severity	Extent (Length)			
	No Defects	Low <10%	Med 10-30%	High >30%
	Low-Cracks < 1/4"	1	2	3
	Med-Cracks 1/4-3/4"	4	5	6
	High-Cracks > 3/4"	7	8	9

Drainage/Roughness/Rutting

Severity	Condition		Description
	No Defects	0	Wide, deep ditches with no obstructions, smooth ride, no rutting, no potholes.
	Minor Defects	1	Drainage may be obstructed, < 1" rutting, minor roughness.
	Moderate Defects	2	Poor drainage, 1-2" rutting, noticeable roughness, potholes < 6" wide.
	Major Defects	3	No drainage; > 2" rutting; potholes 6-12" wide create roughness requiring reduced speeds.

CONCRETE RATING SHEET

Spalling of Joints

Extent (% joints)				
No Defects	Low <10%	Med 10-20%	High >20%	
Severity	Low Spalls < 3"	1	2	3
	Med Spalls 3-6"	4	5	6
	High Spalls > 6"	7	8	9

Broken Slabs

Extent (% slabs)				
No Defects	Low <5%	Med 5-15%	High >15%	
Severity	Low-no more than 3 pieces, no spalling/faulting	1	2	3
	Med-broken into >3 pieces, spalling/faulting <1/4"	4	5	6
	High-4 or more pieces, spalling/faulting >1/4"	7	8	9

Transverse Cracks

Extent (% slabs)				
No Defects	Low <10%	Med 10-20%	High >20%	
Severity	Low-Cracks < 1/8"; no spalling/faulting	1	2	3
	Med-Cracks 1/8-1/2"; spall <3", fault >1/4"	4	5	6
	High-Cracks > 1/2"; spall >3", fault >1/4"	7	8	9

Joint Seal Damage

Extent (%joints)				
No Defects	Low <10%	Med 10-20%	High >20%	
Severity	Low <10% joint length	1	2	3
	Med 10-50% joint length	4	5	6
	High >50% joint length	7	8	9

Faulting

Extent (Length)				
No Defects	Low <10%	Med 10-30%	High >30%	
Severity	Low < 1/2"	1	2	3
	Med 1/2-1"	4	5	6
	High > 1"	7	8	9

Patch Deterioration

Extent (Area)				
No Defects	Low <10%	Med 10-30%	High >30%	
Severity	Low-no fault, no settle at perimeter	1	2	3
	Med-fault & settle <1/4" at perimeter	4	5	6
	High-fault & settle >1/4" at perimeter, cracked patch	7	8	9

Corner Breaks

Extent (% of slabs)				
No Defects	Low <10%	Med 10-20%	High >20%	
Severity	Low-corner cracks, no spalling or faulting	1	2	3
	Med-crack slightly spalled & faulted <1/4"	4	5	6
	High-crack highly spalled & faulted >1/4"	7	8	9

Longitudinal Cracks

Extent (% slabs)				
No Defects	Low <10%	Med 10-20%	High >20%	
Severity	Low-Cracks < 1/8"; no spalling/faulting	1	2	3
	Med-Cracks 1/8-1/2"; spall <3", fault >1/2"	4	5	6
	High-Cracks > 1/2"; spall >3", fault >1/2"	7	8	9

Map Cracks

Extent (Area)				
No Defects	Low <10%	Med 10-20%	High >20%	
Severity	Low-small connected cracks, no spalling	1	2	3
	Med-connected cracks, no spalling	4	5	6
	High-large connected cracks with surface spalling	7	8	9

Deficiency Ratings With Associated Remaining Service Life

Asphalt Rating Sheet

Fatigue Cracking		Edge Cracking		Transverse Cracking		Utility Cuts	
Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life
0	20	0	20	0	20	0	20
1	10	1	12	1	14	1	14
2	8	2	10	2	12	2	12
3	6	3	8	3	10	3	10
4	8	4	10	4	12	4	12
5	6	5	8	5	10	5	10
6	4	6	6	6	8	6	8
7	6	7	8	7	10	7	10
8	2	8	6	8	6	8	6
9	0	9	4	9	2	9	2

Longitudinal Cracking		Block Cracking		Drainage/Roughness/Rutting	
Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life
0	20	0	20	0	20
1	14	1	12	1	16
2	12	2	10	2	10
3	10	3	8	3	4
4	12	4	10		
5	10	5	8		
6	8	6	6		
7	10	7	12		
8	8	8	6		
9	6	9	2		

Concrete Rating Sheet

Spalling		Broken Slabs		Transverse Cracks	
Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life
0	20	0	20	0	20
1	15	1	15	1	18
2	12	2	12	2	15
3	10	3	10	3	12
4	12	4	12	4	15
5	10	5	10	5	10
6	8	6	8	6	6
7	10	7	10	7	10
8	6	8	6	8	4
9	0	9	0	9	0

Joint Seal Damage		Faulting		Patch Deterioration	
Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life
0	20	0	20	0	18
1	16	1	15	1	16
2	14	2	12	2	14
3	12	3	10	3	12
4	14	4	12	4	12
5	10	5	8	5	10
6	8	6	6	6	8
7	12	7	10	7	10
8	8	8	4	8	6
9	6	9	0	9	0

Corner Breaks		Longitudinal Cracks		Map Cracks	
Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life
0	18	0	20	0	20
1	16	1	18	1	18
2	14	2	15	2	15
3	12	3	12	3	12
4	12	4	15	4	12
5	10	5	10	5	10
6	8	6	6	6	6
7	10	7	10	7	10
8	6	8	4	8	4
9	0	9	0	9	0

SUBJECTIVE CONDITION RATING FOR REMAINING SERVICE LIFE IN YEARS (Asphalt & Concrete Roads)

RSL	FAILED 0	POOR 1 - 6	FAIR 7 - 12	GOOD 13 - 18	EXCELLENT 19 - 20
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Deficiency Ratings With Associated Remaining Service Life

Native Primitive Improved Rating Sheet

Cross Section		Rutting		Roadside Drainage	
Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life
0	10	0	10	0	10
1	7	1	9	1	8
2	5	2	7	2	4
3	0	3	5	3	0
		4	7		
		5	4		
		6	3		
		7	4		
		8	2		
		9	0		

Potholes		Dust		Corrugations	
Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life
0	10	0	10	0	10
1	9	1	8	1	9
2	7	2	6	2	7
3	5	3	2	3	7
4	7			4	6
5	4			5	5
6	3			6	5
7	4			7	4
8	2			8	3
9	0			9	0

Gravel Rating Sheet

Cross Section		Rutting		Roadside Drainage	
Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life
0	10	0	10	0	10
1	7	1	9	1	8
2	5	2	7	2	4
3	0	3	5	3	0
		4	7		
		5	4		
		6	3		
		7	4		
		8	2		
		9	0		

Potholes		Dust		Corrugations	
Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life	Distress Rating	Remaining Service Life
0	10	0	10	0	10
1	9	1	8	1	9
2	7	2	6	2	7
3	5	3	2	3	7
4	7			4	6
5	4			5	5
6	3			6	5
7	4			7	4
8	2			8	3
9	0			9	0

Loose Aggregate	
Distress Rating	Remaining Service Life
0	10
1	9
2	8
3	7
4	8
5	7
6	6
7	5
8	3
9	0

SUBJECTIVE CONDITION RATING FOR REMAINING SERVICE LIFE IN YEARS (Gravel & Native Roads)

RSL	FAILED	POOR	FAIR	GOOD	EXCELLENT
	0	1 - 2	3 - 4	5 - 7	8 - 10